



**SPIROVENT QUAD®**



Air Eliminator  
Dirt Separator  
Low Loss Header  
Hydraulic Separator

**SPIROTHERM** 

The Ultimate in Distribution Efficiency

# Air- and dirt-free system water through a single unit, plus hydraulic separation in a low loss header.

The life and efficiency of a heating or cooling system are greatly dependent on the quality of the system water. Air and dirt problems cause frequent breakdowns and increased customer complaints. Corrosion, cavitation, and component wear are consequences of dirty, air-saturated water. Recurring problems and increased maintenance result in unnecessary costs and dissatisfied owners.

Many systems now have the need for hydraulic balance due to separate circuits with variable speed pumps or the need for chiller and boiler loops. Combining all these features in a low loss header saves time and reduces installation costs.

There is a solution!

A hydraulically balanced system without air and dirt is possible. There is a unique four-purpose device that will remove air and dirt to keep the system clean and function as a hydraulic separator in a low loss header.

It includes connections for two separate circuits, requires little maintenance, and works without strainers or filters. Less maintenance, fewer costs, satisfied owners!

The name:

**SPIROVENT QUAD**

Quad Brass  
1"-2"  
Threaded,  
Sweat or  
Press Fit



Quad Steel  
2"-12"  
Threaded or Flanged  
ASME through 4"  
Flanged  
ASME 5"-12"

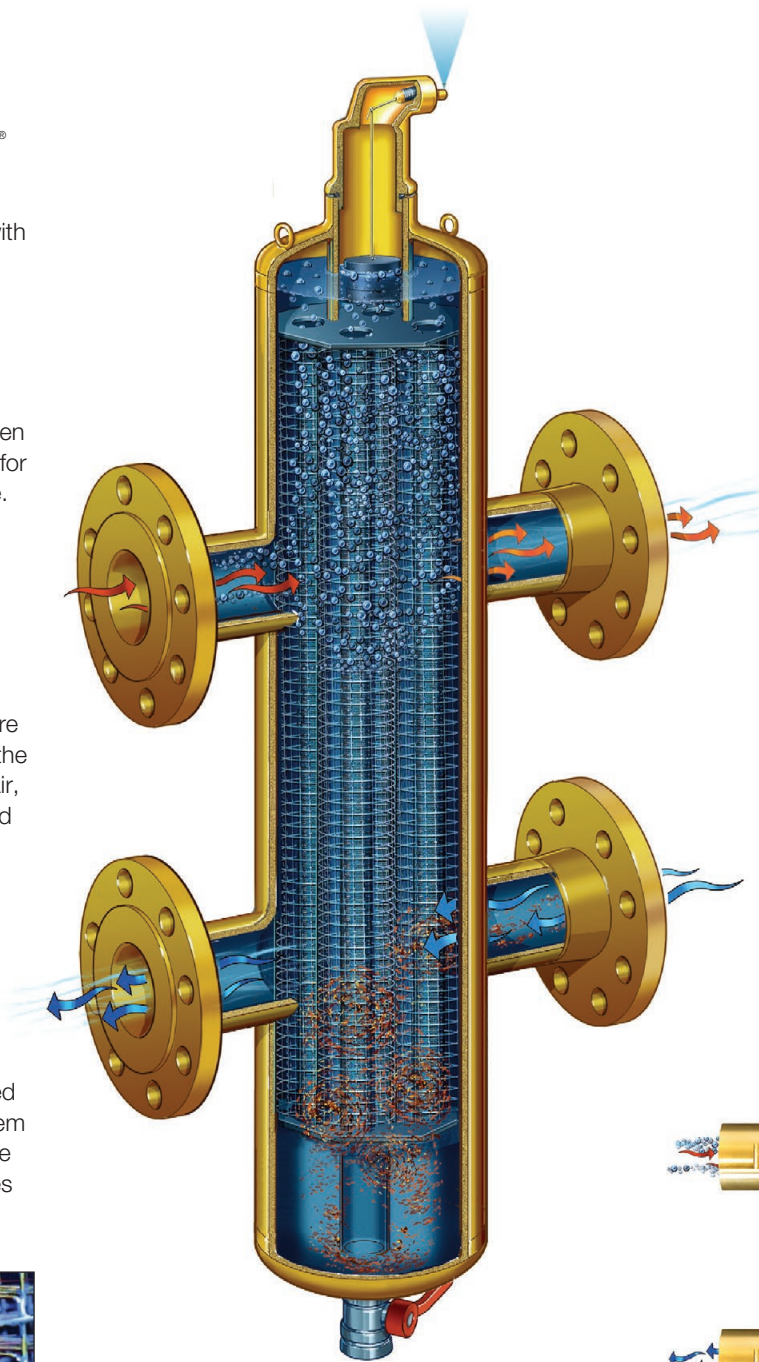
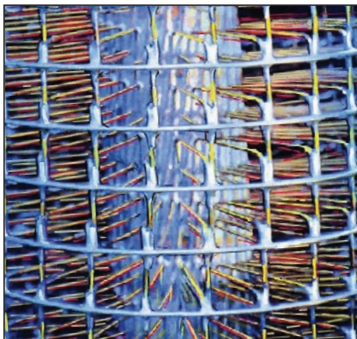


## The Key Difference

Unlike other products which are empty vessels or include only a baffle plate, the Spirovent Quad® combines the features and benefits of the industry-leading Spirovent® air eliminator along with the Spirotrap® dirt separator.

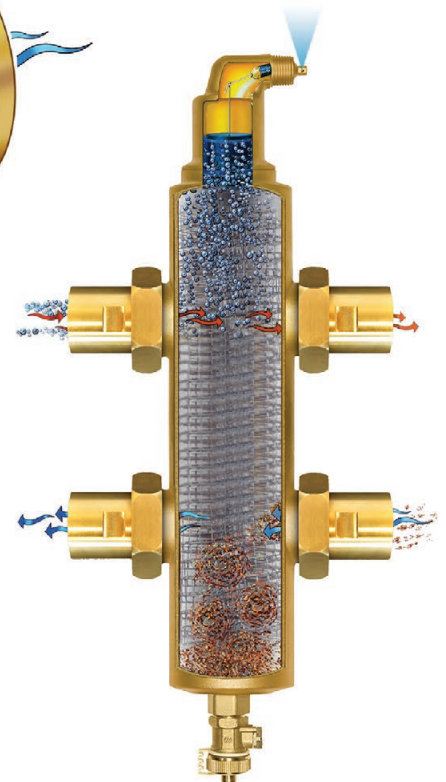
The coalescing element and dirt separation medium completely fill the internal volume of the vessel, providing unsurpassed efficiency. Connections have been engineered and placed to allow for the ultimate in hydraulic balance.

The unique construction of this combined unit allows for the removal of both entrained air and dirt particles. The patented Spirotube®, the core of the Spirovent Quad, creates a low velocity area in the Spirovent core that allows removal of 100% of the free air, 100% of the entrained air, and up to 99.6% of the dissolved air in the upper chamber. The lower chamber provides for removal of all particles 30 micron and larger within 100 passes. Dirt and sediment sink to the bottom of the unit and collect in the dirt chamber, eliminating any blockage concerns. The dirt can be flushed through the drain while the system remains fully operational, and the large collection chamber ensures infrequent flushing.

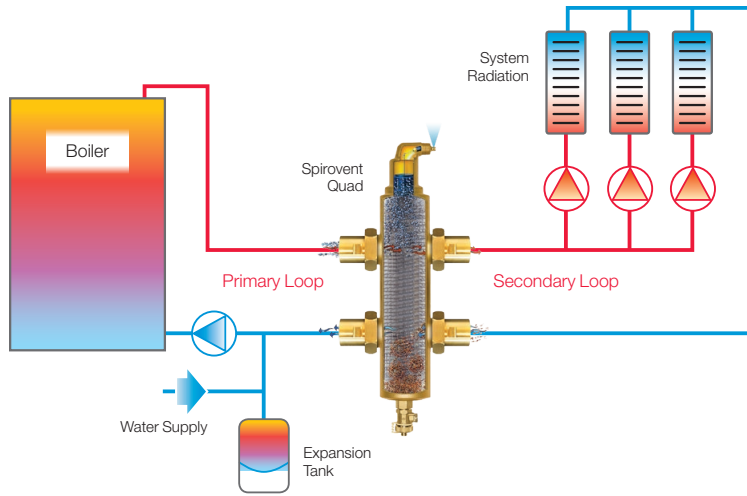


## Advantages to the Installer and the End-User

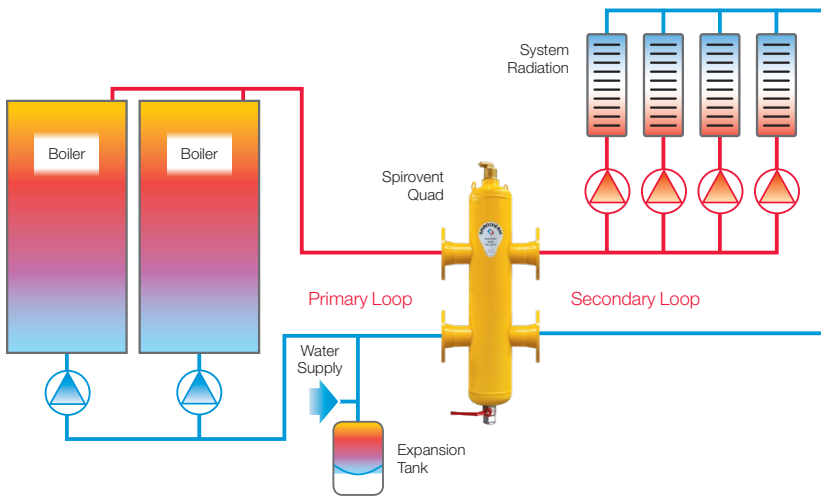
- Integral brass, float-operated venting mechanism with Viton® seal
- No bypass, isolating valves or replacement filters to clog and reduce flow
- Two full-flow operating functions plus hydraulic balance in a low loss header
- Dirt can be flushed while the system is in full operation.
- Quiet operation
- Minimum pressure drop; always constant
- Increased component life
- Reduced oxygen-based corrosion and pump cavitation
- Provides optimum heat transfer



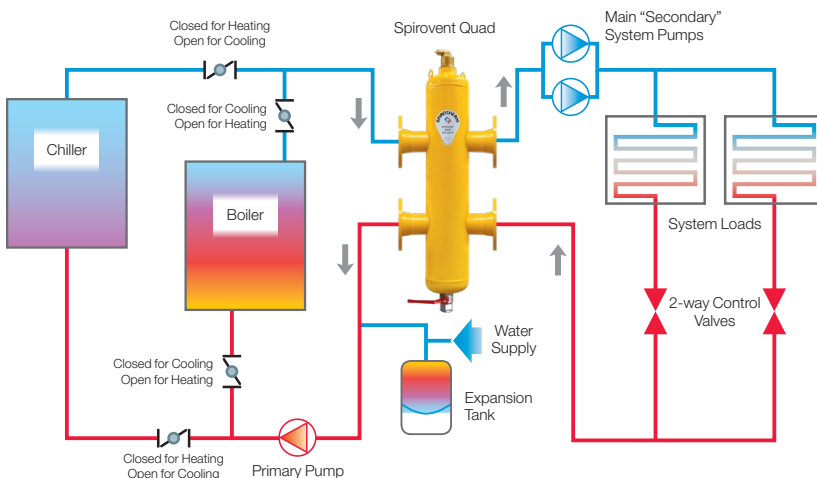
## Spirovent Quad



## Spirovent Senior Quad: Two Boilers



## Spirovent Senior Quad: Dual Temp System



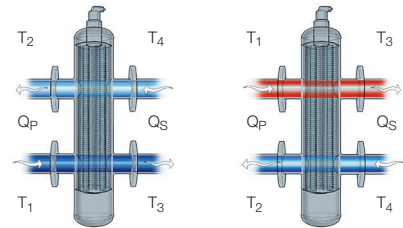
## How exactly does a hydraulic separator work?

A hydraulic separator balances the differences in volumetric flow between a primary circuit (supply =  $Q_p$ ) and a secondary circuit (demand =  $Q_s$ ). Three operating situations can occur if a hydraulic separator is installed in a system, as shown below.

### Cooling

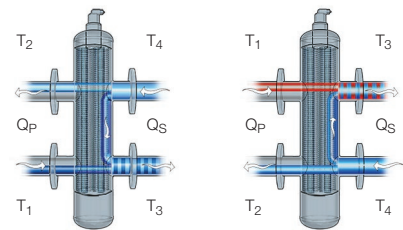
### Heating

Situation 1:  $Q_p = Q_s$   $\Delta T_p = \Delta T_s$   $T_2 = T_4$



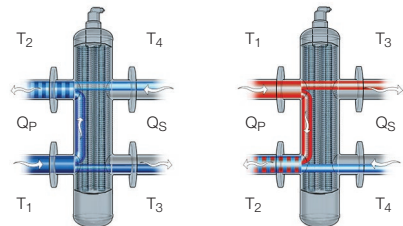
In this rare situation, supply and demand are exactly equal. This is the ideal situation in which the hydraulic separator operates primarily as a high efficiency air eliminator and dirt separator.

Situation 2:  $Q_p < Q_s$   $\Delta T_p > \Delta T_s$   $T_2 = T_4$



In this situation, demand is greater than supply. Some of the colder return water will join the supply, as a result of which it will take longer for the rooms to reach their set temperature. Where possible, the power of the boiler or chiller will then be increased.

Situation 3:  $Q_p > Q_s$   $\Delta T_p < \Delta T_s$   $T_2 > T_4$



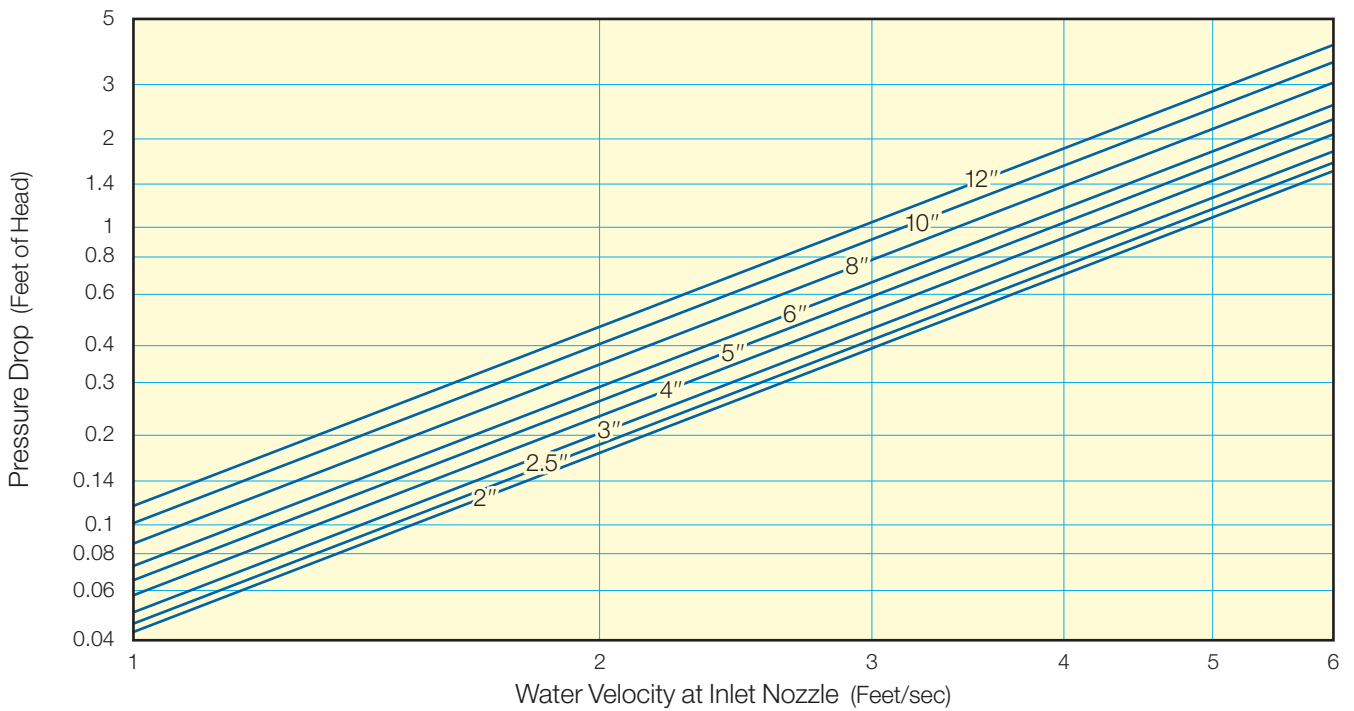
In the third situation, supply is greater than demand. Some of the warmer supply water will now join the return water, resulting in a decrease in the efficiency of the boiler or chiller. Where possible, the power will be modulated downwards.

## Primary/Secondary Piping...done right.

### Quad Advantages

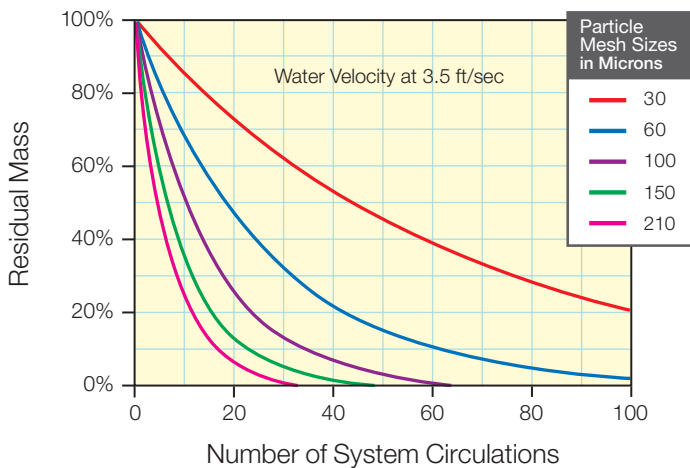
- Spirovent's unrivaled air elimination and dirt separation efficiency is at the heart of every Quad.
- 20-year warranty on brass models, 3-year warranty on steel models.
- Factory-installed integral, serviceable air vent
- Blow down valve included with every Quad.
- Gasketed union tailpiece on all brass units.
- All models designed as standard for 150 psig and 270° F. Higher pressures/temperatures available.

### Pressure Drop

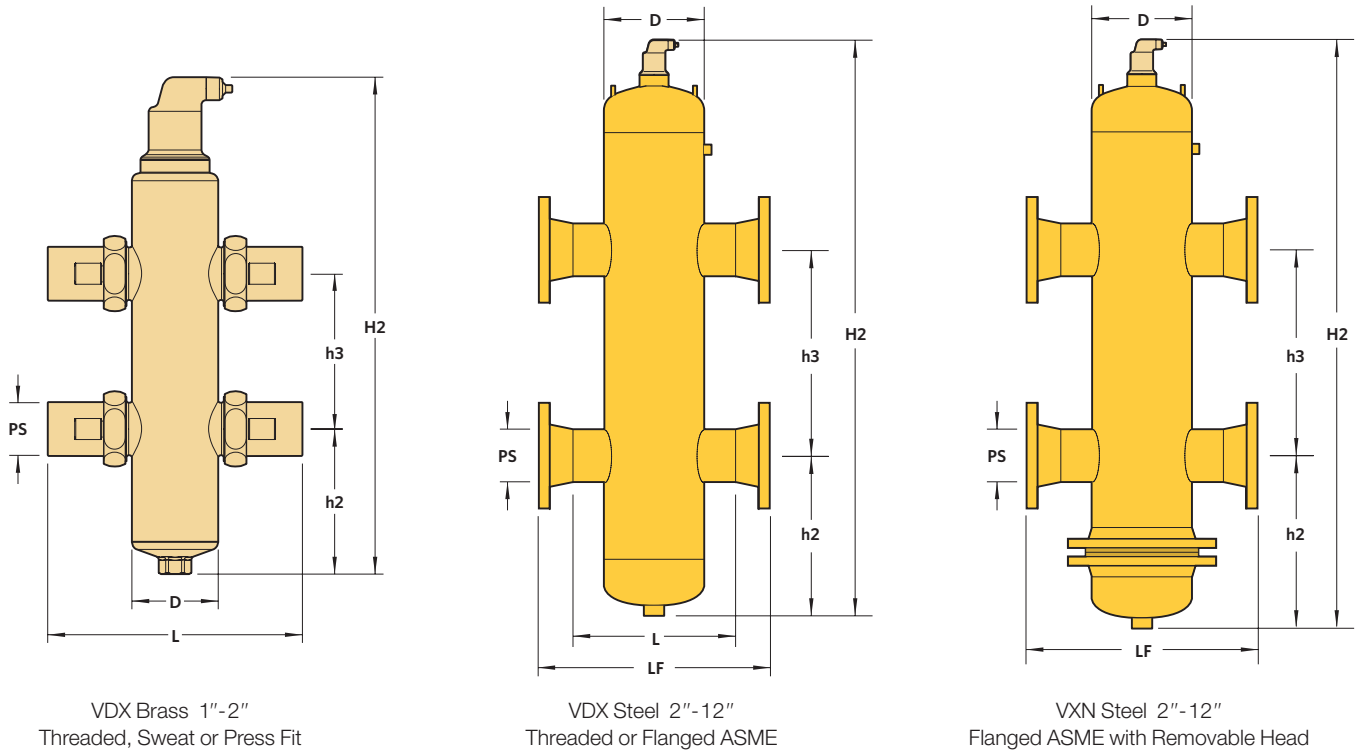


At rated flows pressure drop for 1" to 2" brass models is 0.50 feet.

### Dirt Separation Efficiency



# Technical Specifications



## Steel

|                                  |      | VDX200MT | VDX250MT | VDX300MT | VDX400MT |          |          |          |           |           |
|----------------------------------|------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| Male Threaded                    |      | VDX200MT | VDX250MT | VDX300MT | VDX400MT |          |          |          |           |           |
| Flanged ASME                     |      | VDX200FA | VDX250FA | VDX300FA | VDX400FA | VDX500FA | VDX600FA | VDX800FA | VDX1000FA | VDX1200FA |
| Flanged ASME with Removable Head |      | VXN200FA | VXN250FA | VXN300FA | VXN400FA | VXN500FA | VXN600FA | VXN800FA | VXN1000FA | VXN1200FA |
| Pipe Size                        | inch | 2        | 2½       | 3        | 4        | 5        | 6        | 8        | 10        | 12        |
| D                                | inch | 6.6      | 6.6      | 8.6      | 8.6      | 12.8     | 12.8     | 16.0     | 20.0      | 24.0      |
| H2                               | inch | 32.0     | 36.0     | 39.0     | 50.0     | 61.0     | 70.0     | 91.0     | 113.0     | 133.0     |
| h2                               | inch | 9.4      | 9.9      | 10.6     | 13.8     | 17.4     | 19.9     | 26.6     | 32.9      | 39.2      |
| h3                               | inch | 9.5      | 12.0     | 14.0     | 18.0     | 22.0     | 26.0     | 34.0     | 42.0      | 50.0      |
| L (Threaded)                     | inch | 12.0     | 12.0     | 15.0     | 15.0     | —        | —        | —        | —         | —         |
| LF (Flanged)                     | inch | 15.0     | 15.0     | 20.0     | 20.0     | 26.0     | 26.0     | 32.0     | 36.0      | 42.0      |
| Weight (lbs)                     | MT   | 56       | 64       | 106      | 137      | —        | —        | —        | —         | —         |
|                                  | FA   | 80       | 96       | 146      | 197      | 273      | 323      | 622      | 978       | 1747      |
|                                  | VXN  | 142      | 160      | 242      | 281      | 433      | 518      | 848      | 1380      | 2127      |
| Recom. Flow*                     | GPM  | 60       | 90       | 140      | 240      | 370      | 540      | 940      | 1470      | 2090      |

## Brass

|              |      | VDX100FT | VDX125FT | VDX150FT | VDX200FT |
|--------------|------|----------|----------|----------|----------|
| Threaded     |      | VDX100FT | VDX125FT | VDX150FT | VDX200FT |
| Sweat        |      | VDX100SW | VDX125SW | VDX150SW | VDX200SW |
| Press Fit    |      | VDX100PF | VDX125PF | VDX150PF | VDX200PF |
| Pipe Size    | inch | 1        | 1¼       | 1½       | 2        |
| D            | inch | 3⅜       | 3⅜       | 3⅜       | 4        |
| H2           | inch | 20¼      | 20¼      | 20¼      | 30¼      |
| h2           | inch | 7⅜       | 7⅜       | 7⅜       | 8¼       |
| h3           | inch | 5⅜       | 5⅜       | 5⅜       | 10¼      |
| L (Threaded) | inch | 8⅝       | 8⅝       | 8⅝       | 10⅝      |
| Weight       | lbs  | 13.2     | 14.3     | 15.4     | 26.4     |
| Recom. Flow* | GPM  | 10       | 15       | 30       | 40       |

\* Recommended Flow based on 6 ft./sec. Entering Velocity.  
All models designed as standard for 150 psig and 270°F.  
Consult local sales office for higher ratings.



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