<table>
<thead>
<tr>
<th>Screen mesh no.</th>
<th>Equivalent diameter (micrometer)</th>
<th>Particle designation</th>
<th>Equivalent diameter (micrometer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1180</td>
<td>Coarse sand</td>
<td>&gt;1000</td>
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<tr>
<td>20</td>
<td>850</td>
<td>Medium sand</td>
<td>250-500</td>
</tr>
<tr>
<td>30</td>
<td>600</td>
<td>Very fine sand</td>
<td>50-250</td>
</tr>
<tr>
<td>40</td>
<td>425</td>
<td>Silt</td>
<td>2-50</td>
</tr>
<tr>
<td>100</td>
<td>150</td>
<td>Clay</td>
<td>&lt;2</td>
</tr>
<tr>
<td>140</td>
<td>106</td>
<td>Bacteria</td>
<td>0.4-2</td>
</tr>
<tr>
<td>170</td>
<td>90</td>
<td>Virus</td>
<td>&lt;0.4</td>
</tr>
<tr>
<td>200</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>270</td>
<td>53</td>
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<td></td>
</tr>
<tr>
<td>400</td>
<td>38</td>
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</table>
FIGURE 160. Filter commonly used in trickle irrigation.
The "Thru Flush" System

During the filtering mode, source water enters the filter through the inlet port and then through the screen cartridge where the particulate is trapped on the inside of the screen. Clean, filtered water flows to your irrigation lines through the outlet port.

Filtering

Cleaning the filter is accomplished by simply opening the thru flush valve allowing the force of the water flow to flush the particulate out through the flush port. The SS8 requires 300 GPM water available to provide the thru-flushing cleaning action. The SS6 requires 150 GPM water available to provide thru-flush cleaning action.

Flushing
FIGURE 4-2: COMMON TYPES OF FILTRATION EQUIPMENT
(9) Shut-off Valves
- Use to shut water flow off completely
- Placed in control station unit and at the head of submains

(10) Controllers
- Time clock that will operate over a two week period and will turn on and off automatic valves for a given period of time each day or every other day
- Subunits can automatically be irrigated in sequence thus saving time and labor

(11) Pressure Relief Valves
- Installed to prevent high pressures
  1) Sudden opening or closing of a valve
  2) Starting or stopping of a pump
  3) Pressure regulating valve failure
  4) Slamming shut of a check valve
  5) Failure to evaluate static as well as dynamic pressure conditions for a pipeline
- Hydraulic or electric valves
- Automatic unlimited number of cycles
- Order of operation can be changed
- Operating time and quantity of water can be changed

b. Main, Submains, and/or Manifolds
- Transports water from source to submain lines

Submain (Manifolds)
- Transports water from mainlines to laterals

Supply or Feeder Tubes
- Supply water from the submain to the drip line
- Allows for correct pressure into the drip line

c. Lateral Line
- Strip tubing
- Hose with emitters

(1) Strip tubing
  Types
  - Twin wall
    - Essentially a tube within a tube
    - Water discharged from the supply tube enters the inside tube moves through the length of the row
    - Water moves out through interior holes into the outer tube
    - Outer tube has perforations every 'x' inches through which water seeps into the soil
  - Bi-wall
    - Consists of main chamber which water flows until pressure is same throughout the line
    - Water flows into a secondary chamber on top of the main chamber and, is distributed through holes along the entire chamber
(2) Emitters
- Deliver water from laterals to soil at a specific point
- 4 types of emitters
  (a) Laminar flow
  - Smooth fluid flow at low velocities
  - Simple, reliable, inexpensive
  - Flow varies significantly with pressure
  - Susceptible to clogging
  Ex) Microtubes, capillary tubes, spiral path

(b) Turbulent flow emitters
  - Fluid particles move rapidly in irregular, random motions
  - Resistant to clogging
  - Less sensitive to pressure variations

(c) Vortex emitters
  - Less pressure sensitive than turbulent emitter
  - Water passages are very small
  - Easily clogged by soil particles
  - Require high quality filtering system
  - Requires attentive management
  Ex) Orific vortex emitter

(d) Pressure compensating emitters
  - May be laminar or turbulent
  - Delivers correct flow rate over a range of inlet pressures
  - Flow is relatively constant
  - Flow path is modified by elastomeric disc, diaphragm or changing water passage
  - May be used on steep or undulating terrain