Aeration (Venturi)

Venturi-Aeration units are the safe and efficient way to aerate tanks, lagoons, basins and oxidization ditches.
Units are paired with Gorman-Rupp self priming pumps, so all of the aeration equipment can be mounted on the bank and not on the water surface. The Venturi-Aeration unit uses the “Venturi” effect to draw in atmospheric air.
Water is primed from the water source by the Gorman-Rupp self-priming pump, and “fed” under pressure into the Venturi-Aerator (V-A). The water is accelerated through a nozzle in the V-A which is specifically machined to suit each application. Air is drawn in via the venturi effect and the air and water are mixed under pressure. The water is then discharged, where “hydraulic shear” facilitates the release of soluble gasses and volatiles from the water. The discharged water is saturated with dissolved oxygen.

Advantages
There are many advantages to the Venturi-Aerator. Some of these include:-
- Bank Mounted for safe and easy access
- Not having to use blowers or compressors
- Reduction in WHS issues because operators can quickly and safely access the Venturi-Aerator and pump for monitoring and/or maintenance
- No gearboxes to maintain or service
- No need for cranes or row boats to access equipment
- Easy to service and conduct routine maintenance

A vacuum is developed by the accelerated water exiting the nozzle and drawing air into the mixing zone.

Water Pressure Guage

The only instrumentation required to insure proper operating pressure (between 135-200 kPa)
Efficient
Just because the Venturi-Aerator is more convenient to access, and safer for operators, does not mean users need to accept lower efficiencies. Venturi-Aerators can produce an S.O.T.E. (standard oxygen transfer efficiency) of up to (and in some cases exceeding) 1.86kgO₂/kWh.

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow Range (L/s)</th>
<th>Max. Dissolved Oxygen/Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA-100</td>
<td>4-11</td>
<td>4.6kg</td>
</tr>
<tr>
<td>VA-250</td>
<td>12-22</td>
<td>9.2kg</td>
</tr>
<tr>
<td>VA-500</td>
<td>25-47</td>
<td>19.8kg</td>
</tr>
<tr>
<td>VA-800</td>
<td>50-88</td>
<td>37.0kg</td>
</tr>
</tbody>
</table>

The Venturi-Aerators need to then be paired with the most efficient pump to deliver the best S.O.T.E.

Applications for the Venturi-Aeration systems are many, and include:

- Odour control, corrosion control and BOD reduction at Sewage Pumping Stations
- Odour control and pH improvement at Food Process Plants
- Sludge separation to enhance settling and performance of the primary clarifier at WWTP’s
- Septage Receiving - for odour control, BOD reduction, degassing H2S and “shearing” organic materials
- Mixing and Equalization
- Supernatant aeration from digesters
- Landfill leachate aeration prior to head-works
- Oil & Grease Recovery
- Effluent aeration to streams or wetlands
- Stripping PCE, TCE, etc. from industrial waste streams and groundwater
- Lagoon aeration with two zones
- Stripping CO2 to raise pH, allowing for nitrification (pH >6.8) to begin
Venturi - AERATORS are “Powered By” Gorman-Rupp Pumps

Suitable Industries/Uses: Municipal Wastewater Treatment, Industrial Wastewater Treatment, Lake Destratification, Mine Water Treatment