Pump Stations

The Intelligent Use of Water.™
Agenda

1. Rain Bird History and Speaker Background

2. Pump Hydraulics and System Design Considerations

3. Pump Station Specifications, Key Features and Options
BACKGROUND INFORMATION
Speaker

- Martin Armstrong ASLA
- Licensed Landscape Architect CA4607
- Licensed C-27 Contractor
- CA Rain Bird Pump Products Sales Manager
- 25 years experience in Landscape & Irrigation
Rain Bird History

- 1988 – Began manufacturing (Sweden)
- 1990 – First in Europe with VFD drive
- 1998 – Began selling pump stations in USA
- 2004 – Opened manufacturing facility in Tucson Arizona
Rain Bird is the Industry Leader. Rain Bird’s quality, performance and range of products is unmatched in the irrigation industry. Only Rain Bird can leverage the technology between Pump Stations and Irrigation Systems. Rain Bird Sales and Services teams are able to support the entire system; from Reservoir-to-Rotor.
## Pump Selection

### Site Condition

<table>
<thead>
<tr>
<th>Water Source</th>
<th>Application</th>
<th>HP Range</th>
<th>Serviceability</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pond (with floating intake)</td>
<td>Irrigation</td>
<td>Horsepower</td>
<td>Ease of Service</td>
<td>If the site has a pond, (without a wet well), a Horizontal End Suction or Vertical Multi-Stage can be selected. Vertical Multi-Stage pumps typically have higher hydraulic efficiency.</td>
</tr>
<tr>
<td>Wet Well</td>
<td></td>
<td></td>
<td></td>
<td>If the site has a wet well, a Vertical Turbine pump is usually the best choice for maximum hydraulic efficiency and lowest cost of ownership.</td>
</tr>
<tr>
<td>Tank or pressurized pipe (municipal)</td>
<td>Transfer</td>
<td></td>
<td></td>
<td>If there is a pressurized water source, a Horizontal End Suction or Vertical Multi-Stage can be selected.</td>
</tr>
<tr>
<td>Deep Well (up to 350 ft)</td>
<td>Water Feature</td>
<td></td>
<td></td>
<td>For deep wells, Vertical Submersible Pumps are used. Rain Bird can supply complete pump stations for depths up to 40 ft; or pump station (less pumps) for pump depths up to 350 ft</td>
</tr>
</tbody>
</table>

### Pump Category

<table>
<thead>
<tr>
<th>Site Condition</th>
<th>Horizontal End Suction</th>
<th>Vertical Multi-Stage</th>
<th>Vertical Turbine</th>
<th>Vertical Submersible</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pond (with floating intake)</td>
<td><strong>Good Choice</strong></td>
<td><strong>Best Choice</strong></td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>If the site has a pond, (without a wet well), a Horizontal End Suction or Vertical Multi-Stage can be selected. Vertical Multi-Stage pumps typically have higher hydraulic efficiency.</td>
</tr>
<tr>
<td>Wet Well</td>
<td>Acceptable for up to 3-5 ft lift</td>
<td>Acceptable for up to 15 ft lift</td>
<td><strong>Best Choice</strong></td>
<td>Acceptable</td>
<td>If the site has a wet well, a Vertical Turbine pump is usually the best choice for maximum hydraulic efficiency and lowest cost of ownership.</td>
</tr>
<tr>
<td>Tank or pressurized pipe (municipal)</td>
<td><strong>Best Choice</strong></td>
<td>Good Choice</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>If there is a pressurized water source, a Horizontal End Suction or Vertical Multi-Stage can be selected.</td>
</tr>
<tr>
<td>Deep Well (up to 350 ft)</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td><strong>Best Choice</strong></td>
<td>For deep wells, Vertical Submersible Pumps are used. Rain Bird can supply complete pump stations for depths up to 40 ft; or pump station (less pumps) for pump depths up to 350 ft</td>
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### Comparison

- **Horizontal End Suction**
- **Vertical Multi-Stage**
- **Vertical Turbine**
- **Vertical Submersible**

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<tr>
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<th>Serviceability</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pond (with floating intake)</td>
<td></td>
<td>3/4 HP to 60 HP per pump</td>
<td><strong>Best Choice</strong></td>
<td>All Rain Bird pump stations are designed with serviceability in mind. Horizontal End Suction types are often considered to be the easiest to service, due to their “on-deck” configuration.</td>
</tr>
<tr>
<td>Wet Well</td>
<td></td>
<td>1 HP to 60 HP per pump</td>
<td>Good Choice</td>
<td></td>
</tr>
<tr>
<td>Tank or pressurized pipe (municipal)</td>
<td></td>
<td>10 HP to 125 HP per pump</td>
<td>Good Choice</td>
<td></td>
</tr>
<tr>
<td>Deep Well (up to 350 ft)</td>
<td></td>
<td>2 HP to 20 HP per pump</td>
<td>Good Choice</td>
<td></td>
</tr>
</tbody>
</table>
Rain Bird Pump Product Line
Variable Frequency Drive - VAF
VFD Performance

**Variable Frequency Drive.** VFD technology allows this pump to operate throughout a wide flow range.
BENEFITS OF VFD CONTROL

- **30% to 50% Energy Savings Over Constant Speed System.**
  Hydraulic Institute claims 97% of a pump cost over a 20 year life is energy + maintenance. Only 3% represents initial purchase cost.

- **Slower Pump Start Up**
  Reduced current inrush
  Reduced pressure spikes – water-hammer

- **Constant Pressure During Changing Flow Conditions**
  - Allows intelligent pump feedback (high and low pressure shut down, loss of prime shut down)
  - Less Overall System Maintenance
Warranty

- Read and understand the terms
  - First year
  - Beyond first year
- ASP Support
- Technical Support
Qualified Service Provider
Questions?

Thank You

The Intelligent Use of Water.™