



| | VT Pump | Horizontal Pump | Submerged Pump |
|---|---|---|--|
| Pumping CutOff Depth <i>...ability to Lift Dead Water</i> | Very High 😞 😞 <i>...due to Long Underhanging depth & Vertically Bottom Suction - huge wastage of dead water</i> | High 😞 <i>...due to NPSHr Cavitations Problems & Vertical Bottom Facing Suction - Substantial wastage of dead water</i> | Minimal 😊 <i>...due to Horizontal Side Suction & Minimalistic Underhanging Depth</i> |
| CG (Center of Gravity) <i>(of Pontoon + Pumpset)</i> | Much Above the Deck <i>...leads to pendulum like high amplitude oscillations</i> <p>Highly Unstable ☠️</p> | Above the Deck <i>...leads to mild oscillations</i> <p>Unstable 😞</p> | Below Deck <i>...so no oscillations</i> <p>Stable 😊</p> |
| Stability against Waves, Storms etc. | Highly Unstable <i>...leading to Chances of Toppling & Oscillating</i> | Mildly Unstable <i>...having Some Chances of Toppling</i> | Very Stable... <i>...no Chances of Toppling</i> |
| Direction of Pump's Inlet Suction Flow | Vertical Bottom Facing <i>...leads to Undesirable Suction of Silt</i> ☠️ | Vertical Bottom Facing <i>...leads to Undesirable Suction of Silt</i> 😞 | Horizontal Side Facing <i>...leads to Suction of Fairly Clear Water from Upper Strata.</i> 😊 |

| | VT Pump | Horizontal Pump | Submerged Pump |
|---|---|---|---|
| Size of Pontoon | Bulky | Very Bulky | Compact |
| Pontoon's Head Room requirement (for Lifting Hoist) | Very High | High | Medium |
| Need to Cover the Top (depends on Protection required by Motor type) & Risk of the Top being Blown away in High Winds | Compulsory Very High Risk | Compulsory High Risk | Not Required (Motor is Rainproof) No Risk |
| Lubrication of Pumpsets | Forced Water Lubrication is Continuously required. <i>...is Very Costly & Very Complex to Operate & Maintain</i> | Periodic Oiling &/or Greasing is required. <i>...is Costly & Tedious to Operate & Maintain</i> | Not required. |
| Installation & Operating Manpower: Skill level required & Quantity | Ultra Highly Skilled | Highly Skilled | Medium Skilled |
| Conducive to Remote Operation | No | No | Yes |
| Need for Operator to go up to Pontoon Frequently <i>...for Priming, Alignment of Shaft/Coupling; Gland Packing Replacement / Tightening; Valve Opening / Closing; Forced Water Lubrication; Re-Oiling, Re-Greasing; Sleeve Replacement; etc.</i> | Yes | Yes | Not Required. |

- M. N. Gowaikar, Consulting Engineer