Levitronix Pumps

The Reference For Purity
Trace Metal Contamination by Different Pumps

**Levitronix**

**Better Pumps for Better Yields**

**Trace metal extraction (14 days in 35% HCl)**

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>Surface</th>
<th>Bulk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levitronix BPS-1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Levitronix BPS-3</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Levitronix BPS-4</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Diaphragm Pump A</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Diaphragm Pump B</td>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
</tbody>
</table>

Data by CT Associates Inc.

Levitronix pumps add low trace metal contamination due to small fluid contacting surface!
Particle Generation of Different Pumps

MagLev Centrifugal Pumps (BPS-1, BPS-3) generate 10-100 times Less Particles compared to Diaphragm Pumps
Can Filters Solve All Particle Contamination Problems?
Retention Efficiency of Different Filters and Pumps Operated at Different Flow Rates

Overall retention efficiency as a function of pulsation intensity

Obvious correlation between reduction of retention efficiency and pump pulsation!
Output Pressure of Different Pumps (Flow = 10 Gpm)

Bellows Pump

Diaphragm Pump

Magnetically Levitated Centrifugal Pump (Levitronix)
Filter Retention with Low Particle Loading
(After 0.1 Years of Polydisperse PSL Loading)

LRV = Log \( \left( \frac{c_u}{c_d} \right) \)

90% Retention
70% Retention

A 0.1 \( \mu m \) filter operated with a highly pulsating pump retains 3 times less particles > 0.1 \( \mu m \) compared to the same filter operated with a non-pulsating pump!
Filter Retention with High Particle Loading
(After 1 Year of Polydisperse PSL Loading)

LRV = \log \left( \frac{c_u}{c_d} \right)

After 1 year of simulated particle loading, the 0.1 μm filter operated with the diaphragm pump retained only 20% of 0.1 μm particles!