HEMRO
Project Engineering
Manufacturing
Construction

Filtration Done Right
Physical Treatment Processes

- Gravity Sand Filtration
- Membrane Filtration
- Pressurised Sand Filtration
Points to be considered

1. Capital cost

2. Construction period (Order to commissioning)

3. Operatability, maintenance and associated costs
Pressurised Sand Filtration and Capital Cost

- Reduced civil requirement (excavation, concrete works, consultancy fees, months of maintaining a site establishment, etc.)
- Only one pumpset to feed, transfer and backwash filters (No backwash pumps and airscour units)
- Smaller plant footprint and all associated infrastructure
Pressurised Sand Filtration and Construction Period

• Civil, Mechanical and Electrical work can take place at the same time and be put together on site

• Standard pre-designed units reduces engineering and design time.

• Some filter sizes can be pre-assembled and connected on site. Skid mounted design saves time.
Pressurised Sand Filtration and Operation and Maintenance

• Single filter units can be taken out of operation without having a big impact on quality or production.
• Sand vs membrane replacement cost.
• Low power consumption and operational costs due to the use of only one pumpset.
• No risk to hazardous chemicals and environmental impact as no chemical backwash/cleaning is required.
## Summary

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Gravity Filtration</th>
<th>Membrane Filtration</th>
<th>Pressurised Filtration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Cost</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Project Time Frame</td>
<td>Long</td>
<td>Short</td>
<td>Medium</td>
</tr>
<tr>
<td>Maintenance cost</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Installed Power</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Chemicals required</td>
<td>Dissinfection</td>
<td>CEB, CIP, Dissinfection</td>
<td>Dissinfection</td>
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<tr>
<td>Water quality</td>
<td>Good</td>
<td>Very Good</td>
<td>Good</td>
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</tbody>
</table>
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