Membranes and Modules

Kleansep™: High Flux Rate Ceramic Monolith

Kleansep membranes are available in a wide range of cut-off for the separation of organic molecules, water soluble polymers, emulsions and specific inorganic products.

The ceramic monolith together with the highly selective coating produce high output and a high separation quality.

Membranes and Cut-off

**SPECIFICATIONS**

- **Support:** monolithic TiO₂ – Al₂O₃
- **External diameter/length:** 25 mm / 1178 mm
- **Number of channels:** 7, 8, 12, 19, 31, 61
- **Membrane code:** X - E - D - W - H - S
- **Diameter of channels:** 6, 5, 4.5, 3.5, 2.8, 2.0 mm
- **Membrane:** ZrO₂ / TiO₂
- **Bursting pressure:** 80 bar
- **Service pressure:** 10 bar
- **pH range:** 0 – 14
- **Sterilization:** 121°C
- **Sterilization by oxidants:** yes
- **Solvents / radiations:** unaffected
- **Temperature limitation:** up to 150°C

<table>
<thead>
<tr>
<th>Modules</th>
<th>Number of membranes</th>
<th>7</th>
<th>8</th>
<th>12</th>
<th>19</th>
<th>31</th>
<th>61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module KD1</td>
<td>1 membrane</td>
<td>0.16</td>
<td>0.2</td>
<td>0.2</td>
<td>0.25</td>
<td>0.33</td>
<td>0.45</td>
</tr>
<tr>
<td>Module KD3</td>
<td>3 membranes</td>
<td>0.48</td>
<td>0.6</td>
<td>0.6</td>
<td>0.75</td>
<td>0.99</td>
<td>1.35</td>
</tr>
<tr>
<td>Module KD7</td>
<td>7 membranes</td>
<td>1.12</td>
<td>1.4</td>
<td>1.4</td>
<td>1.75</td>
<td>2.31</td>
<td>3.15</td>
</tr>
<tr>
<td>Module KD9</td>
<td>19 membranes</td>
<td>3.04</td>
<td>3.8</td>
<td>3.8</td>
<td>4.75</td>
<td>6.27</td>
<td>8.55</td>
</tr>
<tr>
<td>Module KD7</td>
<td>37 membranes</td>
<td>5.92</td>
<td>7.4</td>
<td>7.4</td>
<td>9.25</td>
<td>12.21</td>
<td>16.65</td>
</tr>
<tr>
<td>Module KD9</td>
<td>99 membranes</td>
<td>15.84</td>
<td>19.8</td>
<td>19.8</td>
<td>24.75</td>
<td>32.67</td>
<td>44.55</td>
</tr>
<tr>
<td>Module KD138</td>
<td>138 membranes</td>
<td>22.08</td>
<td>27.6</td>
<td>27.6</td>
<td>34.5</td>
<td>45.54</td>
<td>62.1</td>
</tr>
</tbody>
</table>

The membrane area of a filtration module is based on the quantity of membranes and the quantity of channel by ceramic tube (7, 8, 12, 19, 31, 61 channels)
**Kleansep™: the best choice of performance**

- Robust membrane offering a longer life-time expectancy
- Unrivalled performance in microfiltration
- Very high physical resistance
- Quickest return on investment
- Very high flux rate
- Unaffected by chemicals, solvents and radiations
- Back flushing capability
- Compact design

**Kleansep™: the best choice for your needs**

- A wide range of cut-off from nanofiltration to microfiltration
- Orelis Environnement process expertise
- Adaptable to varying viscosities and concentrations with a choice of channel geometries
- Laboratory scale testing facility
- Process support and technical assistance available for both pre-contact and after sales

**Kleansep™: applications**

- Membrane bioreactor
- On-board membrane treatment
- Bilge water
- Chemical industry
- Nuclear industry
- Agro food industry
- Paper industry
- Rolling mills
- Pre-treatment cleaner
- Washing machine tanks
- Oily waste water
- Surface treatment industry
- Automotive industry
- Laundry waste water

---

**Technical advantages**

- Easy operating
- Accepts variations in polluant load
- Real physical barrier for all types of emulsions
- Automatic cleaning

---

**Process flow diagram**

- Paper flow
- Concentrate / Retentate
- Cleaning tank
- Concentration tank
- Feed pump
- Recirculation pump
- Concentrated oil
- Concentrate / Retentate

**Environmental advantages**

- Water savings through permeate reuse
- Production of a low volume of oily concentrates
- Fullfills strongest regulations – High water quality

**Economical advantages**

- Savings on chemical products
- Savings on concentrate treatment