Sani-Pro®
Extended Life Sanitary Spiral Elements

Advanced Membrane Filtration for Food/Beverage Processing

Koch SEPARATION SOLUTIONS

Separation Technologies for a Better Future™
**Cutting-Edge Sanitary Spiral Wound Elements**

**Over 50 Years of Membrane Experience**

Koch Separation Solutions (KSS) is a global leader in innovative membrane filtration technologies. We have used our extensive industry experience with unmatched engineering and technical expertise to design the Sani-Pro® sanitary spiral wound elements specifically for the most demanding food and beverage applications.

**Longer Operating Life with Improved Productivity and Energy Efficiency**

Sani-Pro elements combine innovative construction techniques, optimized subcomponents, and our portfolio of industry-proven membranes into the most advanced crossflow filtration membranes in the market. These elements are designed to improve energy efficiency, reduce operating cost, increase productivity and decrease contamination risk. They are constructed to withstand harsh chemical cleaning which extends their operating life.

### Sani-Pro Technologies
- Microfiltration (MF)
- Ultrafiltration (UF)
- Nanofiltration (NF)
- Reverse Osmosis (RO)

### Benefits of Sani-Pro Products
- High Productivity
- Energy Efficient Operation
- Blister Resistant
- Long Operating Life
- Robust Construction
- FDA, 3-A, EU, and Halal Compliant

### A Sani-Pro for any Application

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Applications</th>
<th>Membrane Type</th>
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</thead>
<tbody>
<tr>
<td>MF</td>
<td>• High Temperature Capability up to 85°C (185°F)</td>
<td>• Sugar &amp; Sweetener Clarification&lt;br&gt;• Fermentation Broth Clarification</td>
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<tr>
<td></td>
<td>• High Flux&lt;br&gt;• BAND-TITE® Construction for Easy Installation and Removal</td>
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<td>UF</td>
<td>• Increased Throughput up to 15%<em>&lt;br&gt;• Lower Energy Consumption by 25%</em>&lt;br&gt;• Blister Free&lt;br&gt;• Chlorine Tolerant HpHT</td>
<td>• Plant and Animal-Base Protein Separation&lt;br&gt;• Gelatin, Pectin and Polysaccharide Concentration&lt;br&gt;• Blood Plasma Processing&lt;br&gt;• Extract Purification</td>
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<td>NF</td>
<td>• Lower Energy Consumption by 15%&lt;br&gt;• Blister Resistant&lt;br&gt;• CIP Temperatures up to 60°C (140°F)&lt;br&gt;• BAND-TITE Construction for Easy Installation and Removal</td>
<td>• Protein, Peptide and Protein Hydrolysate Separation&lt;br&gt;• Fermentation Product Concentration and Desalting&lt;br&gt;• Product Purification</td>
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<tr>
<td>RO</td>
<td>• Lower Energy Consumption by 15%&lt;br&gt;• Blister Resistant&lt;br&gt;• CIP Temperatures up to 60°C (140°F)&lt;br&gt;• Pressure Capability up to 800 psi (55 bar)&lt;br&gt;• BAND-TITE Construction for Easy Installation and Removal</td>
<td>• Sugar Concentration&lt;br&gt;• Juice Concentration&lt;br&gt;• Amino Acid and Fermentation Product Concentration&lt;br&gt;• UF Permeate Polishing for Water Reuse</td>
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* Not yet available with HpHT elements.
Benefits for Every Food and Beverage Process

**Reduced Energy Consumption**

Circulation pumps are typically the largest energy consumer in a crossflow membrane system. Sani-Pro® feed-spacers are specially designed to maximize membrane productivity while minimizing circulation flow requirements. Installation of Sani-Pro elements in your system can reduce overall energy consumption by up to 25% for UF and 15% for RO/NF.

**Circulation Flow Comparison**

![Circulation Flow Comparison Graph](image)

**Increased Productivity**

Over the years, KSS has continuously improved the construction techniques used for spiral wound elements. These improvements are rolled into Sani-Pro elements, allowing for increased membrane area, up to +15% productivity improvement, without compromising separation properties.

**Robust Construction with BAND-TITE Straps**

BAND-TITE® Technology, consisting of our patented reinforced Teflon bands, prevents element unwinding. This technology is implemented in all Sani-Pro NF and RO elements and in high temperature MF, HpHT and XL-1000 UF elements.

**Benefits of BAND-TITE Technology**

- Proper size element diameter for ease of loading and unloading
- Excellent element integrity
- Effective cleaning
- Long membrane life
- No more ineffective cleaning leading to reduced productivity and poor permeate quality
- No more unwinding and channeling

![Standard Element](image)  ![BAND-TITE Element as removed from housing](image)
KSS will partner with you throughout the life cycle of your membrane filtration system. Our experienced technical team will provide global service and support and will work directly with you to maximize process efficiency. KSS ASSIST®, our service and maintenance program, provides the tools to keep your system operation at the highest level, including:

- Membrane Process Optimization
- Plant Audits
- Data Collection, Analysis & Reporting
- Operator Training
- Telephone Support

Koch Separation Solutions

Koch Separation Solutions (KSS) is a global leader in membrane filtration technologies with over 50 years of membrane experience. With best-in-class domain expertise, technology and systems, KSS is uniquely positioned to help customers purify and recover valuable process streams and achieve sustainability goals.