

# Open Innovation

Your Partner for **All** Your Separation Needs

Collaborative Next Generation Process Development Program



**K KOCH**<sup>™</sup>  
SEPARATION SOLUTIONS

*Separation Technologies for a Better Future*<sup>™</sup>

# How can KSS help you?

## Over 50 Years of Membrane Experience Developing Separation Solutions for the Industry

The industry and the municipal market are facing new challenges every day. You understand your challenges and we have the tools to help you develop and implement the solution.

We will work with your engineers and scientists to understand your needs, engaging in early stage development in the lab, pilot scale demonstration, and implementation of the full-scale solution.



### Early Stage Development

- Evaluation of the separation properties using range of membrane types
- Material compatibility testing

### Pilot Scale Testing

- Pilot testing at customer location
- Cleaning strategy
- Full scale costing and design recommendations

### Full Scale Implementation

- System design backed by decades of experience
- Startup, commissioning and comprehensive operator training

## Early Stage Development

During the early stage development phase, KSS will conduct feasibility testing and product performance evaluation.

We will use a wide range of membrane types to find the most suitable membrane product to address your separation challenges.

KSS's R&D team will work with your team on development of the optimal filtration device. Our analytical lab is equipped with state of the art equipment, high magnification SEM, EDX, FTIR and a wide range of wet chemistry testing.

You will find KSS to be a flexible partner handling confidentiality agreements and protecting your IP.

Testing can be done in our facility or at the customer location, including:

- Lab cells for flat sheet membrane testing
- Small scale test rigs for demonstration of hollow fiber and tubular products
- Coagulation evaluation using jar tests



# Pilot Scale Testing

During this phase we will conduct pilot scale testing to optimize and demonstrate the process.

- Pilot testing is done at the customer location to ensure representative feed and to demonstrate actual processes
- KSS's experienced process engineers will provide test protocols and train local technicians to optimize design, including parametric study, excursion tests, sensitivity analysis and tests of extreme conditions.

- Data collected will be used for full scale costing and design recommendations, including CAPEX, OPEX and life cycle costs

Our pilot fleet includes units for different membrane types and utilize the full-scale membrane products to minimize scale up risks and provide real-time performance demonstration. Pilot studies can be as short as two weeks and as long as a full year to capture seasonal changes in water and wastewater projects.



## Full Scale Implementation

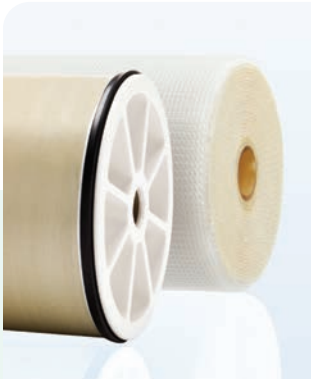
The filtration process development and pilot study will be targeted at a full-scale solution.

Your project will be assigned a project manager (PM) who will be your main contact during the project execution. The PM will champion the KSS team of process, field service, mechanical design and controls engineers to ensure a high-quality system.

As the system arrives on site, you will work with our field service team to ensure your system is commissioned successfully. The startup and commissioning activities include operator training because our ultimate goal is to ensure that you are satisfied and confident running your system.



# Our Product Offering – Your One Stop Source



## Membrane Products

More than 400 unique membrane parts in spiral, hollow fiber and tubular configurations ranging from tight reverse osmosis membranes for salt separation all the way to microfiltration products for solids removal.



## Membrane Systems

Various standard, pre-engineered system families, as well as the capability to design and fabricate custom systems for industrial and sanitary applications to serve a wide range of markets.



## Cleaning Chemicals

Proprietary line of KOCHKLEEN® and KOCHTREAT® products, designed specifically to clean, regenerate and revitalize membranes.



## Service & Maintenance

Experienced engineers and technicians to help you keep your system operation at the highest level.

## 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.

Our broad portfolio of MBR, MF, UF, NF and RO products provides complete filtration solutions to your plant. We will help you meet the process water demand and wastewater treatment objectives, as well as other separation challenges in your process. Our filtration solutions are energy efficient and environmentally friendly.

Our membranes are manufactured in our state of the art facility in the US in an ISO 9001:2015 certified facility.



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