

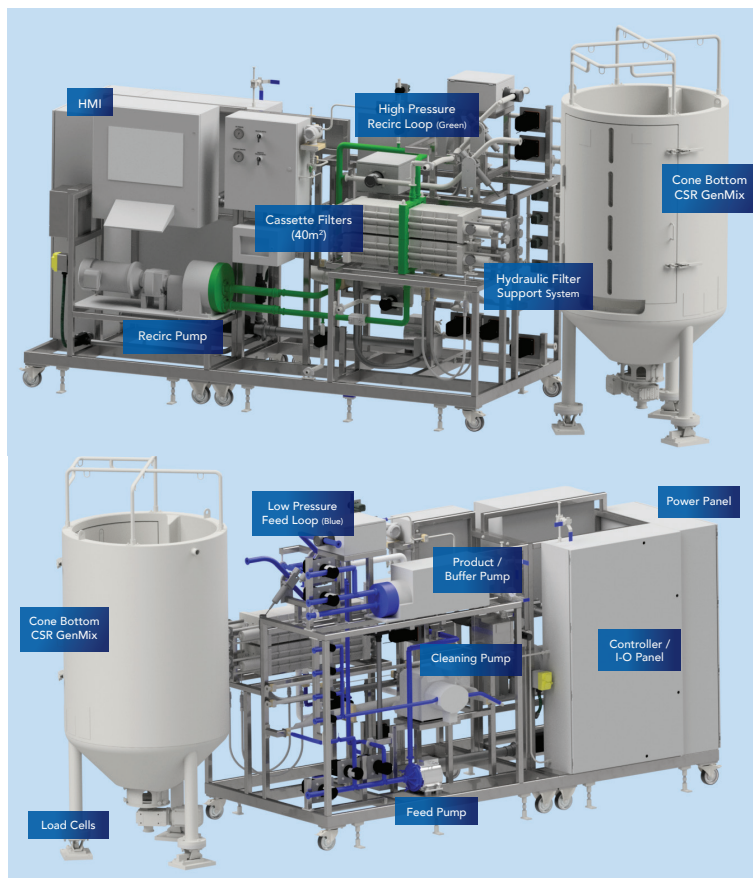
# CSR® LARGE-SCALE, SINGLE-USE TANGENTIAL FLOW FILTRATION (TFF) SYSTEMS



ABEC's Custom Single Run (CSR) Single-Use TFF systems achieve flow rates greater than 260 liters per minute across cassette-type filter areas up to 40 square meters. These systems are designed for the latest next-generation flexible manufacturing facilities as an alternative to stainless steel systems or smaller scale off-the-shelf single-use TFF products. High productivity and maximum product concentration for ultrafiltration/diafiltration (UF/DF) processes are now available in a single-use format.

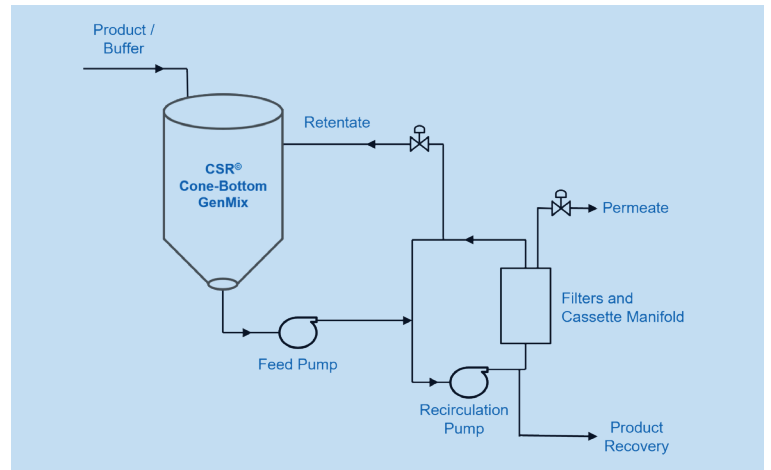
## UNIQUE FEATURES

- Industry's largest available filter areas and flow rates
- Fully single-use flow paths for rapid batch-to-batch and campaign-to-campaign changeovers
- Cone-bottom mixing vessel for high turndown ratios
- Low operating and hold-up volumes for maximum product concentrations
- Customizable for specific applications and filter types
- Non-proprietary control systems and components



## TYPICAL SPECIFICATIONS

- Filter areas up to 40m<sup>2</sup>
- Recirculation flow rates up to 260 liters per minute
- Mixer turn-down ratios > 20:1
- Filter brands: Millipore Pellicon® and Repligen TangenX® SIUS®
- Single-use pumps: Levtronix® (centrifugal), Quattroflow™ (positive displacement), and Watson-Marlow (peristaltic)
- Disposable tubing: Thermoplastic, Braided, and high-pressure PVDF (high pressure)
- Open-architecture automation: Emerson DeltaV™, Rockwell, or Siemens



Typical Flow Schematic

## CSR CONE BOTTOM GENMIX

- Industry's highest turn-down ratio for single-use mixing, enabling high UF product concentration
- Novel CSR Single-Use GenMix design
  - Bottom center-mounted agitator
  - Low-profile mechanically-coupled impeller
  - Disposable Container (DC) Holder with baffles
- Temperature control available via dimpled jacket
- Accurate level sensing via load cells

