

Cadence™

SINGLE-PASS TANGENTIAL FLOW FILTRATION (TFF) MODULAR KIT

Single-pass tangential flow filtration (SPTFF) has revolutionized how TFF is implemented in biotech, vaccine, blood plasma, and other applications. The Cadence™ modular kit expands the standard SPTFF offering by enabling use with any membrane or cassette format in our current portfolio, providing the flexibility needed for today's challenging applications.

Features and benefits

- Fully modular design, which provides the ability to assemble any staging configuration up to nine stages in series.
- Use of any of our existing membrane types and molecular weight cutoffs.
- Use of any of our existing 93 cm² or 186 cm² cassette types and screen channel formats.
- A single kit can be used to create multiple assembly types.

Overview

The Cadence modular kit is a process-development tool that comes with manifold plates and all the necessary gasket types to allow you to assemble any SPTFF configuration up to nine stages in series. Assemble the Centramate™ cassettes of your choice in a Cadence SPTFF holder or a standard Centramate holder. Using our conventional TFF cassette building blocks, with either Delta regenerated cellulose or Omega™ polyethersulfone membrane, helps to ensure accurate scalability, proven selectivity, and low protein-binding attributes.



Fig 1. Cadence single-pass TFF modular kit.

Applications and operational benefits

Many applications can benefit from the advantages of SPTFF technology but require different membrane types and cassette formats. Different types of staging configurations may also be required to achieve the target concentrations for some of today's challenging applications. The Cadence modular kit provides the flexibility that is needed in process development while capitalizing on the benefits of SPTFF technology.

Enhances downstream processing to increase capacity and reduce costs – The Cadence SPTFF technology can eliminate or reduce the size of intermediate storage tanks and associated cleaning of tanks when used for in-process volume reduction before or after existing steps.

Enables in-process volume reduction – Depending on the initial concentration and product characteristics, you can achieve a volume concentration factor (VCF) of two to 20× (or higher).

Optimizes processing of highly shear-sensitive products – SPTFF processing results in only one pass through the pump and module, reducing shear exposure. For products that are sensitive to pumping, the pump can be eliminated completely by using pressurized vessels to flow the process fluid through the module. Further benefits are achieved by eliminating mixing or foaming issues associated with recirculation back to the feed tank with conventional TFF systems.

Enables continuous processing – Cadence SPTFF products allow for concentration in a single pass through the device, eliminating the recirculation loop and the need to accumulate a batch. This makes it an enabling technology for continuous bioprocessing.

Product platform – Similar to other Cadence SPTFF devices, the Cadence modular kit is used in conjunction with our standard cassettes with either Delta regenerated cellulose or Omega polyethersulfone membrane. These membrane types provide the high-flux, high-selectivity and low-protein-binding characteristics.

Holders

The modular kit can be used in conjunction with either the SPTFF holder, or a standard Centramate holder. The SPTFF holder can hold more cassettes than the Centramate holder and can also be used in conjunction with Cadence pre-configured SPTFF modules.

Number of cassettes each holder type can accommodate:

Cassette size	Cassette area	Cadence SPTFF holder		Centramate holder	
		Minimum	Maximum	Minimum	Maximum
T01	93 cm ²	4	30	1	21
T02	186 cm ²	3	21	1	15

Standard Centramate cassettes (93 cm² or 186 cm² nominal size) are ordered separately. The number of cassettes required will depend on the application. Our team of technical specialists is available to provide guidance on format configuration and membrane/cassette selection.

Specifications

The operating characteristics for any single-pass TFF process must be established empirically by performing trials and analyzing the results. Our team of technical specialists is available to assist in conducting trials to develop operating conditions necessary to achieve the desired process objectives.

Materials of construction

Gaskets	USP class VI pharmaceutical grade, platinum-cured silicone
Manifold plates	USP class VI ultra-high-molecular-weight (UHMW) polyethylene
Connections	1/8 in. hose barb

Operating limits

Maximum pressure	4.1 barg (60 psig)
Maximum feed flow rate	250 mL/min
Processing temperature range	Ambient up to 40°C for four hours cleaning pH range: 2 to 13

Ordering information

Description	Contents	Product code
Cadence modular kit	1 × feed manifold 1 × retentate manifold 25 × gaskets	SPTFFMKPD9
Cadence SPTFF holder	1 × holder	CSPHM0330
Centramate standard TFF holder	1 × holder	FS001K10

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