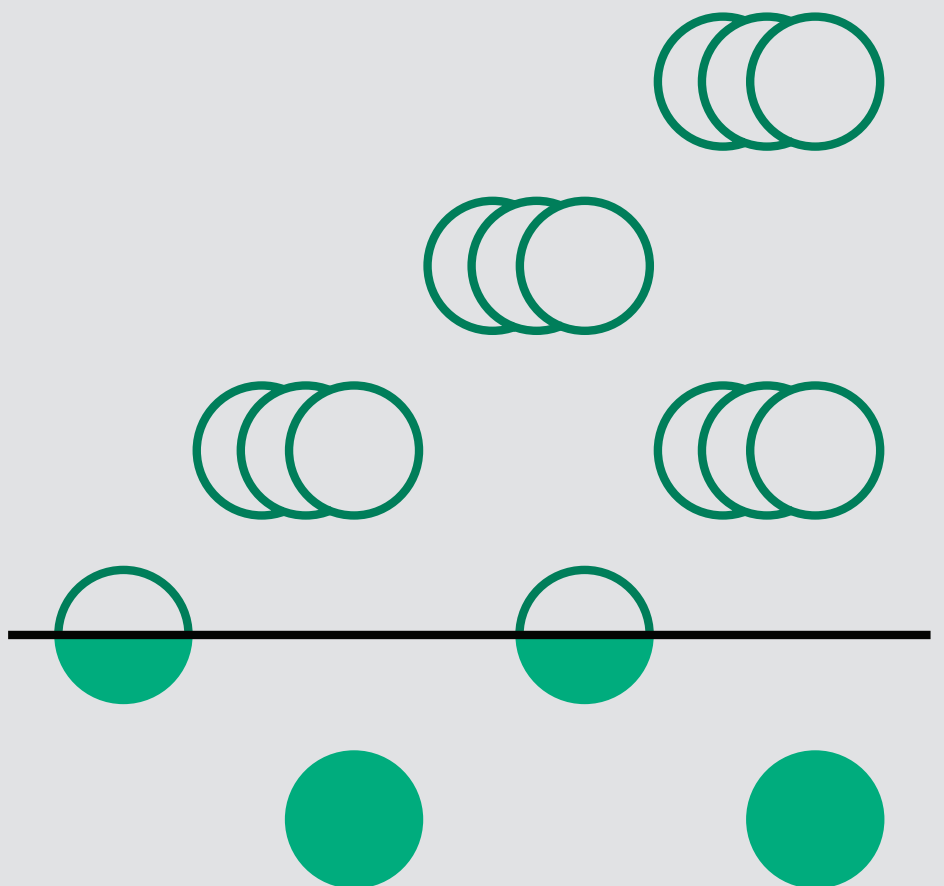


바이오의약품 공정을 위한 TFF 솔루션 Cassette 카탈로그

Bioprocess TFF(Tangential Flow Filtration)
solution cassette catalogue



목차

1	Ultrafiltration TFF	2
2	Microfiltration TFF	5
3	Single-Use TFF (SUTFF)	7
4	Single-Pass TFF (SPTFF): Inline-Concentrator	10
5	Single-Pass TFF (SPTFF): Modules	12
6	Single-Pass TFF (SPTFF): Inline-Diafiltration	16
7	TFF Holder Families	18

T-Series TFF cassettes

Ultrafiltration

Product line and key feature

Omega™ PES membrane	Delta Cellulose membrane
• 높은 유속과 선택성 • 생물학적, 물리적 분해에 안정적이며 화학적 호환성이 뛰어남 • 손쉬운 스케일업 • Vaccine, mAb, rProtein, plasma의 한외여과/정용여과에 사용	• 높은 유속과 선택성 • 비특이적 흡착을 최소화 하여 높은 회수율 제공 • 손쉬운 스케일업 • mRNA, saRNA, Fab, rProtein, plasama의 한외여과/정용여과에 사용

Technical Information

	Omega™ (PES)	Delta (Cellulose)
Materials of Construction		
Membrane	Omega™ Polyethersulfone	Delta Regenerated Cellulose
Support	Polyolefin	
Screens	Polypropylene	
Encapsulant	Polyurethane with white pigment (TiO ₂)	
Permeate seals	Medical grade, platinum cured silicone	
Gaskets	Medical grade, platinum cured silicone	
Operating Limits		
Maximum pressure ⁽¹⁾	6 barg (87 psig) at 23 °C 4 barg (58 psig) at 55 °C	6 barg (87 psig) at 23°C 4 barg (58 psig) at 55°C
Maximum transmembrane pressure (TMP)	4 barg (58 psig) at 55 °C	4 barg (58 psig) at 55°C
Temperature range ⁽²⁾	-5 to 55 °C	4 to 55°C
pH range	2 to 14	2 to 13
Typical operating parameters		
Cross flow rate for processing	5 – 7 L/min/m ² (0.5 – 0.7 L/min/f ²)	5 to 7 L/min/m ² (0.5 to 0.7 L/min/ft ²)
Cross flow rate for cleaning	8 – 10 L/min/m ² (0.8 – 1.0 L/min/ft ²)	5 to 8 L/min/m ² (0.5 to 0.8 L/min/ft ²)
Integrity test		
Test pressure	2 barg (30 psig)	4.1 barg (60 psig) for 10, 30 kDa MWCO 2.1 barg (30 psig) for 100 kDa MWCO
Maximum air forward flow	< 1600 mL/min/m ² (< 150 mL/min/ft ²)	< 538 mL/min/m ² (< 50 mL/min/ft ²) for 10, 30 kDa MWCO ≤ 409 mL/min/m ² (≤ 38 mL/min/ft ²) for 100 kDa MWCO

⁽¹⁾ Pressure rating will be dependent on rating of the lowest system component.
⁽²⁾ Cassettes must not be allowed to freeze.

Format guide

	공정 개발 단계		공정 개발 및 임상 단계		
포맷					
코드명	T01	T02	T12	T06	T26
유효여과면적	93 cm ² (0.1 ft ²)	186 cm ² (0.2 ft ²)	0.1 m ² (1.1 ft ²)	0.5 m ² (5.4 ft ²)	2.5 m ² (27.0 ft ²)

Specification

	Omega™ (PES)	Delta (Cellulose)
Shelf Life		
Storage solution	0.3 N Sodium hydroxide	0.1 N Sodium hydroxide
Expected shelf life from	5 years	3 years
Storage condition	In the original packaging at 4-25°C and protected from direct light	

Biological Safety
The materials of construction in the T-Series cassettes have been tested and meet requirements for United States pharmacopeia (USP) biological reactivity test, in vivo <88> at 70°C
Documentation
Certificate of quality
Membrane Cassette Care and Use Procedures
Material safety data sheet (MSDS) for cassette preservative
Two platinum cured silicone gaskets

Ordering information

Membrane Type

Molecular Weight Cutoff (MWCO)

Nominal membrane area

T-Series cassettes

Part Number :

Example Part Number:

OS010T12

Omega™ membrane, 10 kDa molecular weight cutoff, 0.1 m² (1.1 ft²) Centramate™ screen channel cassette

Membrane Type		
Code	Membrane	Description
OS	Omega™	Modified Polyethersulfone
DC	Delta	Regenerated Cellulose

Molecular Weight Cutoff (MWCO)		
Code	NMWC	
001	1 kDa	
003	3 kDa	
005	5 kDa	
010 ⁽¹⁾	10 kDa	
030 ⁽¹⁾	30 kDa	
050	50 kDa	
070	70 kDa	
100 ⁽¹⁾	100 kDa	
300	300 kDa	

⁽¹⁾ Note: Delta membrane is only available in 10, 30, and 100 kDa MWCO.

Nominal membrane area		
Code	Cassette type	Nominal membrane area
T01	Centramate™	93 cm² (0.1 ft²)
T02	Centramate™	186 cm² (0.2 ft²)
T12	Centramate™	0.1 m² (1.1 ft²)
T06	Centrasette™	0.5 m² (5.4 ft²)
T26	Centrasette™	2.5 m² (27.0 ft²)

Supor™ PES membrane cassette

Microfiltration

Product line and key feature

Cassettes with Supor™ PES Membrane

- 다양한 공극 크기(0.1 – 0.65 μm)의 Microfiltration
- 비특이적 흡착을 최소화 하여 높은 회수율 제공, 뛰어난 화학적 호환성
- 목적에 따라 Medium screen(중간 점성, 정화된 액체) 및 Suspended screen(고점성, 불순물이 포함된 액체) 선택 가능
- 배양액 회수, 농축, 정화에 사용 가능하며 박테리아, 포유류 세포, 곤충 세포, 이스트 등 다양한 곳에 응용 가능

Technical Information

Supor™ Polyethersulfone (PES)	
Materials of Construction	
Membrane	Supor™ microfiltration-optimized Polyethersulfone
Encapsulant	Polyurethane
Screens	Polyester
Spacers	Polyolefin

Operating Limits	
Recommended maximum operating feed pressure	5 barg (75 psig)
Maximum operating temperature	50 °C (122 °F)

Cassette channel configuration	
Medium screen	Clarified solutions; low – medium viscosity Final concentration < 30% (300 mg/mL)
Suspended screen/open channel	Particles / cells / cell debris in solution / High viscosity

Storage agent	
Shipped wet in	15 – 20% glycerin, 0.05 – 0.1% sodium azide
Storage solution	0.3 N sodium hydroxide

The storage solution must be removed, and the cassette flushed well with water prior to use to prevent product contamination.

Format guide

	공정 개발 단계		공정 개발 및 임상 단계		
포맷					
코드명 (Medium screen)	C12P1	C12P2	C12	F06	F26
코드명 (Suspended screen)	C11P1	C11P2	C11	F07	F27
유효여과면적	0.01 m ² (0.1 ft ²)	0.02 m ² (0.2 ft ²)	0.1 m ² (1.0 ft ²)	0.5 m ² (5.4 ft ²)	2.5 m ² (27.0 ft ²)

Ordering information

Membrane Type Micron ratings Nominal membrane area

Cassettes with Supor™ PES Membrane

Part Number :

PS

Example Part Number:
PSM10C12P2

Microfiltration cassettes with Supor™ membrane,
0.1 micron rating, medium screen,
0.02 m² (0.2 ft²) Centramate™ cassette

Membrane Type		
Code	Membrane	Description
PS	Supor™ PES	Microfiltration-optimized Polyethersulfone

Available micron ratings		
	Code	Pore size (µm)
	M10	0.1
	M20	0.2
	M45	0.45
	M65	0.65

Nominal membrane area		
Code	Cassette and screen type	Nominal membrane area
C12P1	Centramate™, Medium screen	0.01 m² (0.1 ft²)
C12P2	Centramate™, Medium screen	0.02 m² (0.2 ft²)
C12	Centramate™, Medium screen	0.1 m² (1.0 ft²)
F06	Centrasette™, Medium screen	0.5 m² (5.4 ft²)
F26	Centrasette™, Medium screen	2.5 m² (27.0 ft²)
C11P1	Centramate™, Suspended screen	0.01 m² (0.1 ft²)
C11P2	Centramate™, Suspended screen	0.02 m² (0.2 ft²)
C11	Centramate™, Suspended screen	0.1 m² (1.0 ft²)
F07	Centrasette™, Suspended screen	0.5 m² (5.4 ft²)
F27	Centrasette™, Suspended screen	2.5 m² (27.0 ft²)

Note: Not all varieties of PSM cassettes shown in the tables are available, it depends on size/micron rating.

Single-use TFF modules

Ultrafiltration, Ready-to-use

Product line and key feature

Single Use TFF Module

- 사전에 조립된 형태로 사용 전 살균 세척 없이 간편하고 손쉽게 사용 가능
- 감마 멸균된 카세트 모듈로 cGMP 등급 공정에 사용 가능 (Ready to use)
- Single-use 타입으로 공정 간 빠른 전환 및 재사용이 가능해 공정 유연성 제공
- 연구개발 단계부터 상업용 배치까지 안정적인 스케일업
- 바이오 의약품의 한외/정용여과에 사용

Technical Information

Omega™ (PES)	
Materials of Construction	
Membrane	Polyethersulfone
Support	Polyolefin
Screens	Polypropylene
Encapsulant	Polyurethane with white pigment (TiO₂)
Seals	Platinum cured silicone and thermoplastic elastomer
Manifold plates	Glass bead reinforced polypropylene with white pigment (TiO₂)
Port caps	Polypropylene for Luer connections, polyethylene for sanitary fittings
Covers	High impact polystyrene

Operating Limits	
Recommended maximum operating feed pressure	4 barg (58 psig)
Maximum transmembrane pressure (TMP)	4 barg (58 psig)
Temperature range during processing	4 to 40 °C
Temperature range during pre-use sanitization	18 to 25 °C
Recommended cross flow rate	5 – 7 L/min/m² (0.5 – 0.7 L/min/ft²)
Typical operating time	8 hours

Integrity test	
Test pressure	2 barg (30 psig)
Maximum air Forward Flow	≤ 1600 mL/min/m² (≤150 mL/min/ft²) at 20 °C

Single-use TFF modules must be used in an appropriate holder.
They are integrated in single-use TFF systems. The operating limits of the system should also be considered.

Format guide

공정 개발 단계			공정 개발 및 임상 단계		
포맷					
코드명	T001	T002	T010	T050	T250
유효여과면적	93 cm ² (0.1 ft ²)	186 cm ² (0.2 ft ²)	0.1 m ² (1.1 ft ²)	0.5 m ² (5.4 ft ²)	2.5 m ² (27.0 ft ²)

Ordering information

Membrane Type Molecular Weight Cutoff (MWCO) Nominal membrane area

Single Use TFF Modules

Part Number :

CSUM

Example Part Number:
CSUM010T050

Single use TFF Module with omega membrane,
10 kDa nominal molecular weight cutoff,
0.5 m² (5.4 ft²) Centrasette™ screen channel cassette

Membrane Type		
Code	Membrane	Description
CSUM	Omega™	Single-use TFF Module with Omega™ membrane

Molecular Weight Cutoff (MWCO)		
Code	NMWC	
010	10 kDa	
030	30 kDa	
100	100 kDa	

Nominal membrane area		
Code	Cassette type	Nominal membrane area
T001	Centramate™	93 cm ² (0.1 ft ²)
T002	Centramate™	186 cm ² (0.2 ft ²)
T010	Centramate™	0.1 m ² (1.1 ft ²)
T050	Centrasette™	0.5 m ² (5.4 ft ²)
T250	Centrasette™	2.5 m ² (27.0 ft ²)

Ordering information - Holders

Holders for Single Use TFF Modules

For Centramate™ membrane type (0.1 m² membrane area)

Part Number :

CSUH040

Holder for Centramate™ type membrane
Orientation: Both (Vertical or horizontal)
Number of Single use TFF module that fit in holder: 1
Part numbers of compatible Single use TFF module:
CSUM__T001, CSUM__T002, CSUM__T010



For Centrasette™ membrane type (0.5 and 2.5 m² membrane area)

Part Number :

CSUH250SA

Holder for Centrasette™ type membrane
Orientation: Horizontal
Number of Single use TFF module that fit in holder: 1
Part numbers of compatible Single use TFF module:
CSUM__T050, CSUM__T250



Cadence™ Inline Concentrator

Ultrafiltration, Ready for use, SPTFF

Product line and key feature

Cadence™ Inline Concentrator
• 공정 부피 축소 및 컬럼 크로마토그래피 전후 탈염 및 농축, 항체 또는 재조합 단백질의 정제 및 회수 • 재순환 루프가 없고 공정 물질의 체류시간 및 shear stress 를 감소시켜 제품 손상 최소화 • 연속공정에 적용 가능하며 공정 부피를 감소시켜 컴팩트한 시스템 설계 • 사전에 조립된 형태로 별도의 홀더 없이 사용 가능

Technical Information

Materials of Construction	
Cassette	Omega™ (PES) or Delta (Regenerated Cellulose) membrane
Screen	Polypropylene
Encapsulant	Polyurethane with white pigment (TiO ₂)
Permeate seals	Medical grade silicone
Gaskets	Medical grade, platinum-cured silicone
Manifold plates	Ultra high molecular weight polyethylene (UHMWPE)
Tubing and connectors	Tubing: pharmaceutical grade platinum-cured silicone T01/T02 - female Luer connection and cap: polypropylene (PP) T12 - MPC quick disconnect connector and plug: polysulfone (PS) T06 - MPX quick disconnect connector and plug: polysulfone (PS)
Operating Limits	
Maximum operating pressure	4.1 barg (60 psig)
Maximum transmembrane pressure (TMP)	4.1 barg (60 psig)
Operating temperature range	20 – 25 °C for extended use (freezing will damage module) Up to 40 °C for 4 hours cleaning
Operating pH range	2 to 13
Integrity test	
Delta membrane module	< 538 mL/min/m ² (<50 mL/min/ft ²) at 4.1 barg (60 psig)
Omega™ membrane module	<1600 mL/min/m ² (<150 mL/min/ft ²) at 2.1 barg (30 psig)

Format guide

	공정 개발 단계		공정 개발 및 임상 단계	
포맷				
코드명	T010	T020	T120	T060
유효여과면적	0.065 m ² (0.7 ft ²)	0.13 m ² (1.4 ft ²)	0.7 m ² (7.5 ft ²)	3.5 m ² (37.7 ft ²)

Ordering information

Membrane Type	Molecular Weight Cutoff (MWCO)	Nominal membrane area
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Cadence™ Inline Concentrator

Part Number :

407

Example Part Number:

ILD010T120407

Cadence™ Inline concentrator cassette with Delta regenerated cellulose membrane, 10 kDa molecular weight cutoff, 0.7 m² (7.5 ft²) membrane area

Membrane Type		
Code	Membrane	Description
ILOS	Omega™	Inline concentrator cassette™ with Omega™ PES membrane
ILD	Delta	Inline concentrator cassette™ with Delta regenerated cellulose membrane

Molecular Weight Cutoff (MWCO)	
Code	NMWC
010	10 kDa
030	30 kDa

Nominal membrane area	
Code	Membrane area
T010	0.065 m ² (0.7 ft ²)
T020	0.13 m ² (1.4 ft ²)
T120	0.7 m ² (7.5 ft ²)
T060	3.5 m ² (37.7 ft ²)

Cadence™ single-pass TFF modules

Ultrafiltration, SPTFF

Product line and key feature

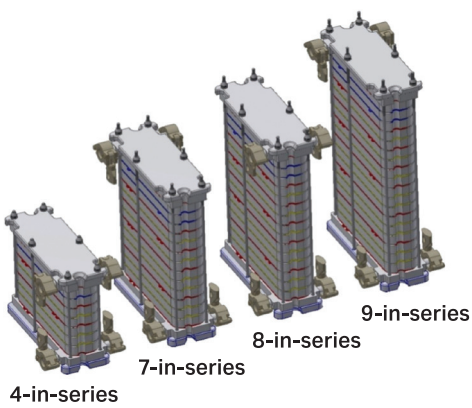
Cadence™ Single-Pass TFF Module
• 재순환 루프를 제거하여 연속공정 구현 가능 • 공정 물질의 체류시간 및 shear stress 를 감소시켜 제품 손상 최소화 • 회수 성능 개선 및 hold-up 부피 감소로 제품 수율 향상 • 사전에 조립된 모듈 형태로 제공, 설치 및 사용 간소화

Technical Information

Delta (Cellulose)	
Materials of Construction	
Membrane	Regenerated Cellulose
Gaskets	USP Class VI Pharmaceutical grade, platinum cured silicone
Manifold plates	USP Class VI Ultra-high-molecular-weight (UHMW) polyethylene
Connections	1⁄8 inch hose barb
Operating Limits	
Feed pressure during processing	2.1 to 4.1 barg (30 to 60 psig)
Retentate pressure during processing	Greater than 0.3 barg (5 psig)
Maximum operating pressure	6 barg (87 psig) at 23 °C 4 barg (58 psig) at 55 °C
Operating temperature range	4 to 40 °C (122 °F)
Operating pH range	2 to 13
Integrity test	
Test pressure	4.1 barg (60 psig)
Maximum air Forward Flow	< 500 mL/min/m² (<50 mL/min/ft²) at 20 °C
Storage agent	
Storage solution	0.1 N sodium hydroxide for less than three months 5% ethanol and 1% sodium diacetate for more than three months

Format guide

Module Area (m²)	Cadence™ Single Pass TFF Configurations			
	4-in-series	7-in-series	8-in-series	9-in-series
T01 (93 cm²)	0.065	0.12	0.14	0.17
T02 (186 cm²)	0.13	0.24	0.28	0.33
T12 (0.1 m²)	0.7	1.3	1.5	1.8
T06 (0.5 m²)	3.5	6.5	7.5	9.0



Modules shown utilizing T12 Centramate™ (0.1 m²) building blocks

Ordering information

Membrane Type	Molecular Weight Cutoff (MWCO)	Nominal membrane area
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Cadence™ SPTFF Modules

Part Number :



Example Part Number:

CD010T120713

Cadence™ Single pass TFF Module with Delta membrane, 10 kDa molecular weight cutoff, 1.3 m² (14.0 ft²) membrane area

Membrane Type		
Code	Membrane	Description
CD	Delta	Cadence™ Single-pass TFF Module with Delta membrane

Molecular Weight Cutoff (MWCO)		
	Code	NMWC
	010	10 kDa
	030	30 kDa

Nominal membrane area and configuration		
Code	Configuration	Membrane area
T010407	4-in-series	0.065 m ² (0.7 ft ²)
T010713	7-in-series	0.12 m ² (1.3 ft ²)
T010815	8-in-series	0.14 m ² (1.5 ft ²)
T010918	9-in-series	0.17 m ² (1.8 ft ²)
T020407	4-in-series	0.13 m ² (1.4 ft ²)
T020713	7-in-series	0.24 m ² (2.6 ft ²)
T020815	8-in-series	0.28 m ² (3.0 ft ²)
T020918	9-in-series	0.33 m ² (3.6 ft ²)
T120407	4-in-series	0.13 m ² (1.4 ft ²)
T020713	7-in-series	0.24 m ² (2.6 ft ²)
T020815	8-in-series	0.28 m ² (3.0 ft ²)
T020918	9-in-series	0.33 m ² (3.6 ft ²)
T120407	4-in-series	0.7 m ² (7.5 ft ²)
T120713	7-in-series	1.3 m ² (14.0 ft ²)
T120815	8-in-series	1.5 m ² (16.1 ft ²)
T120918	9-in-series	1.8 m ² (19.4 ft ²)

Ordering information - Holders

Holders for Cadence™ SPTFF Module

Part Number :

CSPH

Example Part Number:

CSPHS9000

Cadence™ Single-Pass Holder for Centrasette™ T06 format
Compatible with module configuration : 7-in-series, 8-in-series, 9-in-series

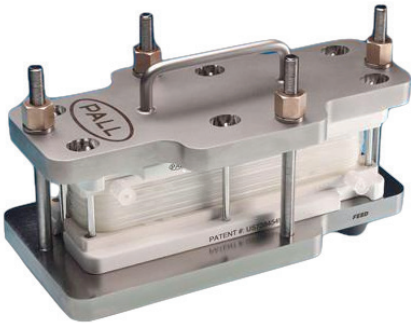
Holder Type	
Code	Description
CSPH	Cadence™ Single-Pass Holder

Cassette Format and Maximum area		
Code	Cassette Format	Maximum Membrane Area
M0330	Centramate™ (T01, T02)	0.33 m ² (3.6 ft ²)
M1800	Centramate™ (T12)	1.8 m ² (19.4 ft ²)
S3500	Centrasette™ (T06)	3.5 m ² (37.7 ft ²)
S9000	Centrasette™ (T06)	9.0 m ² (96.9 ft ²)

Application

Single-Pass TFF Modular Kit

- 93 cm² or 186 cm² nominal area cassettes can be used
- Process Development scale Only
- Flexibility to create any number of stages and staging formats up to 9-in-series
- 1 Cadence™ modular kit, 1 Holder, TFF cassette needed



Ordering information

Cadence™ Modular Kit Part Number :

SPTFFMKPD9

Kit Contents: 1 x Feed manifold
 1 x Retentate manifold
 25 x Gaskets

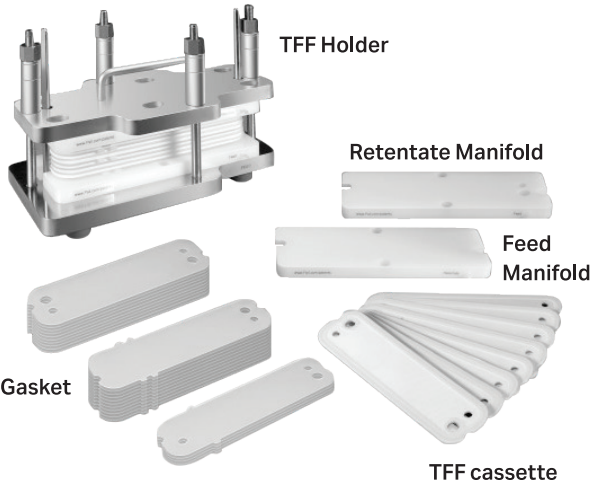
Holder Part Number (ordered separately) :

CSPHM0330

Cadence™ SPTFF holder

FS001K10

Centramate™ standard TFF holder



Number of cassettes each holder type can accommodate:

	Cadence™ SPTFF Holder		Centramate™ Holder	
	Minimum	Maximum	Minimum	Maximum
T01	4	30	1	21
T02	3	21	1	15

Cadence™ Inline Diafiltration Module

Diafiltration, Ready for use, SPTFF

Product line and key feature

Cadence™ Inline Diafiltration Module
- 최종 원액의 완충액 교환, 컬럼 크로마토그래피 전후 탈염 또는 버퍼교환, 오염 제거 - 재순환 루프가 없고 낮은 hold-up 부피로 정용여과 공정 수행 - 연속공정에 적용 가능하며 높은 여과 교환 계수로 공정 시간 전반에 안정적인 성능 제공 - 공정 물질의 체류시간 및 shear stress 를 감소시켜 제품 손상 최소화 - 사전에 조립된 형태로 별도의 홀더 없이 사용 가능

Technical Information

Materials of Construction	
Cassette	Omega™ (PES) or Delta (Regenerated Cellulose) membrane
Screen	Polypropylene
Encapsulant	Polyurethane with white pigment (TiO ₂)
Permeate seals	Medical grade silicone
Gaskets	Medical grade, platinum-cured silicone
Manifold plates	Ultra high molecular weight polyethylene (UHMWPE)
Connections	T01/T02 – female Luer connection and cap: Polypropylene T12 – female MPC quick disconnect connector and plug: Polysulfone
Flowpaths	Polypropylene, polysulfone, and platinum-cured silicone
Pump Head Tubing	PharmaPure (platinum-cured silicone) or Sta-Pure (expanded polytetrafluoroethylene (ePTFE) and platinum-cured silicone) Flowpath connections on tubing sets are open to the feed container/vessel
Operating Limits	
Maximum operating pressure	4.1 barg (60 psig)
Operating temperature range	15 – 25 °C for extended use (freezing may damage the module) Up to 40 °C for 4 hours cleaning
Operating pH range	2 to 13
Integrity test	
Delta membrane module	< 538 mL/min/m ² (<50 mL/min/ft ²) at 4.1 barg (60 psig)
Omega™ membrane module	<1600 mL/min/m ² (<150 mL/min/ft ²) at 2.1 barg (30 psig)

Format guide

	공정 개발 단계		공정 개발 및 임상 단계
포맷			
코드명	T01	T02	T12
유효여과면적	1,100 cm ² (1.2 ft ²)	2,200 cm ² (2.4 ft ²)	12,000 cm ² (12.9 ft ²)

Ordering information

Membrane Type	Molecular Weight Cutoff (MWCO)	Nominal membrane area
Cadence™ Inline Diafiltration		
Part Number :		
	030	
Example Part Number: DFOS030T020612		
Cadence™ Inline diafiltration cassette with Omega™ PES membrane, 30 kDa molecular weight cutoff, 0.22 m ² (2.4 ft ²) membrane area		

Membrane Type		
Code	Membrane	Description
DFOS	Omega™	Inline diafiltration cassette with Omega™ PES membrane
DFDC	Delta	Inline diafiltration cassette with Delta regenerated cellulose membrane

Molecular Weight Cutoff (MWCO)	
Code	NMWC
030	30 kDa

Nominal membrane area	
Code	Membrane area
T010	0.11 m ² (1.2 ft ²)
T020	0.22 m ² (2.4 ft ²)
T120	1.2 m ² (12.9 ft ²)

TFF Holder Families

Centramate™, Centrasette™, Centrastak™

Lab and Development Scale (Centramate™)

	Centramate™ LV	Centramate™ SS	Centramate™ PE
Maximum Operating Temperature	50 °C	80 °C	80 °C
Maximum Operating Pressure	5 bar	6 bar	6 bar
Surface Finish	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated
Nominal Membrane Area	0.01 – 0.04 m²	0.01 – 0.37 m²	0.01 – 0.46 m²
Dimensions (mm)	230(L) x 120(W) x 66(H)	230(L) x 135(W) x 160(H)	240(L) x 95(W) x 170(H)
Working Volume (starting)	25 – 4,000 mL	0.5 – 80 L	0.5 – 100 L
Working Volume (Final)	15 mL	150 mL	150 mL
Weight	4 kg	6.5 kg	7 kg

Ordering information

Holders		
	Code	Description
	CM018LV	Centramate™ LV
	FS001K10	Centramate™ SS
	FS002K10	Centramate™ PE

Pilot Scale (Centrasette™)

	Centrasette™ P	Centrasette™ LV	Centrasette™ 5
Maximum Operating Temperature	50 °C	80 °C	80 °C
Maximum Operating Pressure	5 bar	6 bar	6 bar
Surface Finish	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated
Nominal Membrane Area	0.46 – 2.0 m²	0.46 – 2.0 m²	0.46 – 4.6 m²
Dimensions (mm)	300(L) x 200(W) x 340(H)	260(L) x 250(W) x 210(H)	260(L) x 250(W) x 270(H)
Working Volume (starting)	2.5 – 500 L	2.5 – 500 L	2.5 – 1,000 L
Working Volume (Final)	400 mL	400 mL	1,000 mL
Weight	25 kg	28 kg	30 kg

Ordering information

Holders		
	Code	Description
	FS039K05	Centrasette™ P
	FS044K05	Centrasette™ LV
	FS001K05	Centrasette™ 5 (manual torque)
	FS020K05	Centrasette™ 5 (auto torque)

Process Scale I (Centrastak™)

	Centrastak™ 100AT	Centrastak™ 200AT	Centrastak™ 300AT	Centrastak™ 400AT
Maximum Operating Temperature	80 °C	80 °C	80 °C	80 °C
Maximum Operating Pressure	6 bar	6 bar	6 bar	6 bar
Surface Finish	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated	Ra <0.8µm - Passivated
Nominal Membrane Area	0.9 – 20.0 m²	1.85 – 40.0 m²	2.8 – 60.0 m²	3.7 – 80.0 m²
Dimensions (mm)	390(L) x 910(W) x 590(H)	390(L) x 910(W) x 940(H)	390(L) x 910(W) x 1,070(H)	390(L) x 910(W) x 1,200(H)
Working Volume (starting)	10 – 4,000 L	20 – 8,000 L	30 – 12,000 L	40 – 16,000 L
Working Volume (Final)	4 L	10 L	15 L	20 L
Weight	155 kg	255 kg	314 kg	409 kg

Ordering information

Holders	
Code	Description
FS050K05	Centrastak™ 100AT (Auto torque)
FS034K05	Centrastak™ 200AT (Auto torque)
FS036K05	Centrastak™ 300AT (Auto torque)
FS038K05	Centrastak™ 400AT (Auto torque)



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