Stax™ mAx

CLARIFICATION PLATFORM

Robust, high-performance cell culture clarification

The Stax™ mAx clarification platform is a single-use, depth filtration solution for the economic clarification of monoclonal antibody cell cultures without the need for centrifugation or process additives. The filtration stages are optimized to maintain performance as cell density and viability change. This performance minimizes the impact of process variability between batches and delivers a platform that works across a wide range of cell cultures.

The platform scales directly with a range of formats and sizes suitable for bench-top testing up to large-scale clinical production. Whatever your process volume the Stax mAx platform assures high throughput and filtrate quality and delivers flexibility, performance and simplicity in a small footprint to meet your clarification needs.

What is the Stax mAx platform?

The platform consists of two double-layer HP-series depth filtration grades, PDP8 plus PDE2, that combine to create a 4-layer filter system. The coarse primary clarification filter grades (stage 1) and the finer second stage deliver high throughput and high filtrate clarity.

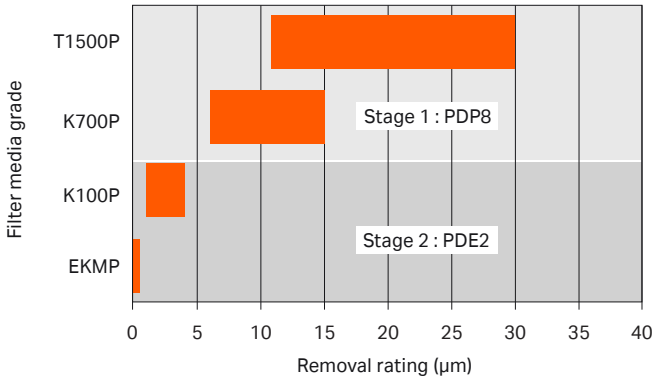

Fig 1. Removal ratings of the platform filter grades.

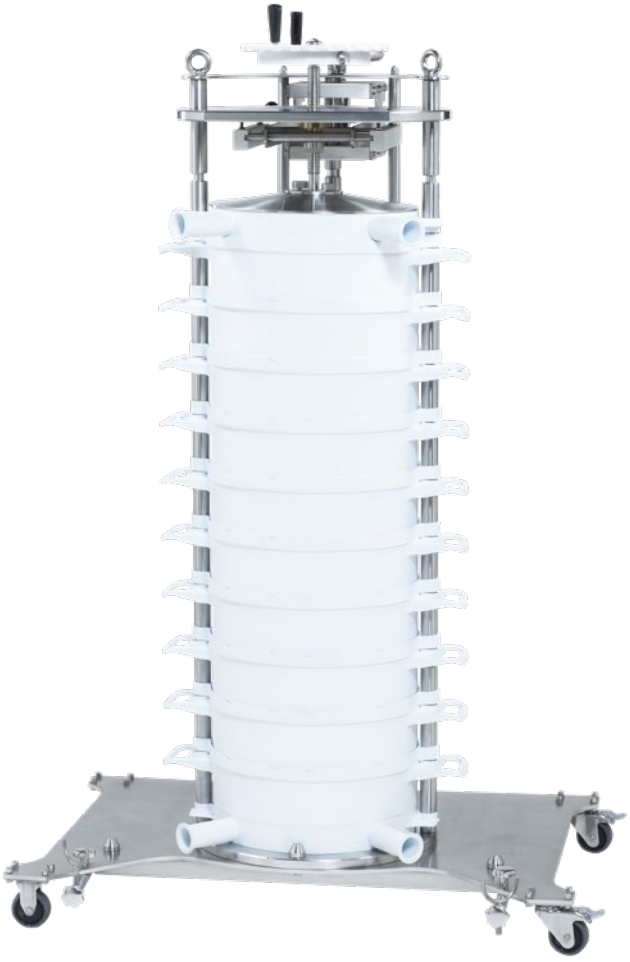

Fig 2. Stax mAx clarification platform.

Optimized for cell densities of up to 35 × 10^6 cells/mL and for cell culture turbidity of up to around 3000 NTU, the Stax mAx platform delivers economy, scalability and simplicity across a broad range of cell cultures.

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How does the platform perform?

The combination of filter sheets maintains a high throughput even as the cell density increases and viability decreases. This results in a reduction in the number of capsules required per batch by 25% to 50% when compared to HP-series, double-layer, single-stage depth filtration systems.

This throughput ensures an economic depth filtration solution can be achieved even with large process volumes. When selected, the platform performance is resilient against natural batch-to-batch variations in cell culture characteristics, which would traditionally lead to a risk of incomplete harvesting due to premature filter blockage.

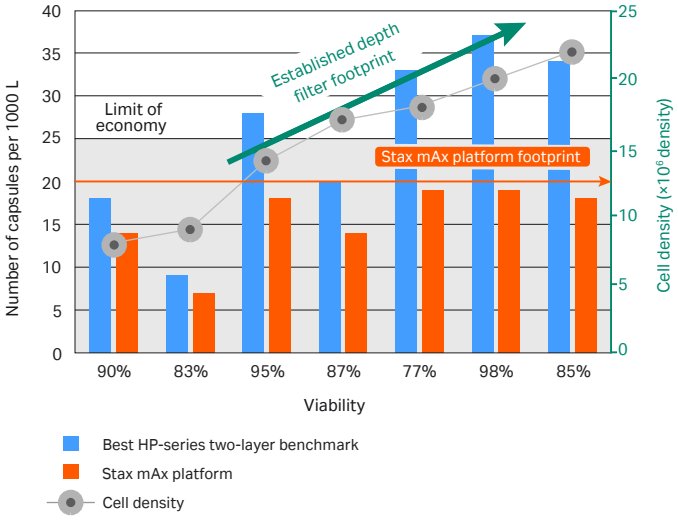

Fig 3. Robust performance of Stax mAx platform.

What formats are available?

The Stax mAx platform depth filter grades, PDP8 and PDE2, are available in a range of formats to support process development through to scale-up and full-scale systems. The high throughput maintains a small footprint as your process scales.

Typical volume	Format	Filtration area
100 to 300 mL	Supracap™ 50 capsules	22 cm²
		
1 to 10 L	Supracap 100 capsules	0.025 to 0.1 m²
		
25 to 300 L	Stax system capsules	0.25 to 3 m²
		
50 to 500 L	Stax system capsules	0.5 to 5 m²
		
100 to 1000 L	Stax system capsules	1 to 10 m²
		

Capsule specifications

Materials of construction	Supracap 50 capsules	Supracap 100 capsules	Stax capsules
Capsule shell	Polypropylene	Polypropylene	Glass-filled polypropylene
Manifold assemblies	–	–	Glass-filled polypropylene
Internal module	Polypropylene	Polypropylene	Polypropylene
Gasket	Silicone	Silicone	Silicone
Depth filter media	Cellulose	Cellulose	Cellulose
Maximum operating pressure	3 bar (44 psi) at 40°C	3 bar (44 psi) at 40°C	3.5 bar (50 psi) at 25°C 1.0 bar (14.3 psi) at 60°C
Maximum differential pressure	1.5 bar (22 psi)	1.5 bar (22 psi)	2.4 bar (35 psi) at 25°C
Maximum operating temperature	40°C	40°C	60°C
Sterilization by autoclaving	1 × 30 minutes at 125°C	1 × 60 minutes at 125°C	2 × 60 minutes at 125°C
Inlet / outlet connections	Luer lock	38 mm (1½ in.) sanitary flange or 13 mm (½ in.) hose barb or 6 mm (¼ in.) hose barb	25 to 38 mm (1 to 1½ in.) sanitary flange
Filtration area	22 cm^2	127 mm (5 in.) 0.025 m^2 254 mm (10 in.) 0.05 m^2 508 mm (20 in.) 0.10 m^2	Small 0.25 m^2 Medium 0.5 m^2 Large 1.0 m^2

Capsule ordering information

Supracap 50 capsules

Platform stage	Description	Details	Surface area	Product code
1	Media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	22 m^2 (3.41 $in.^2$)	SC050PDP8
2	Media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	22 m^2 (3.41 $in.^2$)	SC050PDE2

Luer-lock inlet, outlet and vent connections

Supracap 100 capsules

Platform stage	Description	Details	Surface area	Product code
1	127 mm (5 in.) media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	0.025 m^2 (0.27 ft^2)	NP5LPDP87
2	127 mm (5 in.) media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	0.025 m^2 (0.27 ft^2)	NP5LPDE26
1	254 mm (10 in.) media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	0.05 m^2 (0.54 ft^2)	NP6PDP86
2	254 mm (10 in.) media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	0.05 m^2 (0.54 ft^2)	NP6PDE26
1	508 mm (20 in.) media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	0.10 m^2 (1.08 ft^2)	NP7PDP86
2	508 mm (20 in.) media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	0.10 m^2 (1.08 ft^2)	NP7PDE21

All product codes ending in '1' have a 1 to 1½ in. sanitary flange inlet and outlet connection
All product codes ending in '6' have a 6 to 13 mm (½ in.) hose barb inlet and outlet connection
All product codes ending in '7' have a 6 mm (¼ in.) hose barb inlet and outlet connection

Stax capsules

Platform stage	Description	Details	Surface area	Product code
1	Small: media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	0.25 m^2 (2.70 ft^2)	SXSPDP8402SP
2	Small: media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	0.25 m^2 (2.70 ft^2)	SXSPDE2402SP
1	Medium: media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	0.5 m^2 (5.38 ft^2)	SXMPDP8404SP
2	Medium: media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	0.5 m^2 (5.38 ft^2)	SXMPDE2404SP
1	Large: media grade PDP8	6 to 30 µm, PDP8 media (1/pkg)	1.0 m^2 (10.8 ft^2)	SXLPDP8408SP
2	Large: media grade PDE2	0.2 to 3.5 µm, PDE2 media (1/pkg)	1.0 m^2 (10.8 ft^2)	SXLPDE2408SP

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