

## Mustang® Q XT Product Line

For scalable, robust, membrane chromatography performance

The use of scalable Mustang XT membrane chromatography capsules is a flexible solution for downstream processing that significantly helps process developers improve their process economics.

- Eliminate issues and costs associated with packing and operating a column
- Maximize throughput – 30 to 50 times higher flow rates than sorbents, with good capacity
- Smaller footprint allows for flexible use and significantly reduced buffer consumption
- Ease of use – no packing, unpacking, and simple set up
- A disposable or re-useable process option

### Proven Applications

- Contaminant removal: DNA, virus, host cell protein, and endotoxin
- Plasmid, virus, protein capture, and oligonucleotide purification
- Column guard; enhance selectivity of subsequent chromatography steps

### Mustang Technology

Mustang membrane chromatography continues to make advances in chromatographic separations. Its open pore structure eliminates the diffusion limitations of sorbents, allowing biomolecules to access all binding sites by direct fluid convection. This means that high dynamic binding capacities and sharp breakthrough curves are achieved over a very wide range of flow rates and also a large range of molecular sizes.

### Introducing the Mustang XT Range

Mustang Q XT capsules have been designed for optimum membrane chromatography performance, providing scalability from process development through to full scale manufacturing. Each unit is constructed with the same membrane bed height to maintain scalability for both dynamic binding capacity and pressure drop, and the durable polypropylene housing has been designed to



minimize upstream and downstream hold-up volume, to enhance chromatographic performance. The durable housing also provides the flexibility to use Mustang XT devices as single use disposables, or as multi-use devices. Available at this time with Mustang Q chemistry, the Mustang Q XT capsules can be operated at typical flow rates of 10 MV/min, and exhibit excellent dynamic binding capacities for maximum throughput.

### Chromatography Performance

In many applications the dynamic binding capacity of Mustang Q membrane is equivalent to or greater than the equivalent resin chemistries, and unlike sorbents, the dynamic binding capacity is independent of flow rate. In polishing applications, for the removal of low levels of contaminants, this means high flow rates (more than 10 MV/min) and low pressure drops that can be fully exploited with minimum membrane volume. In capture applications, good resolution with high yields and minimal elution volumes are achieved, due also to the characteristics of the membrane, the uniform flow path and the very low total volume to membrane volume ratio which is engineered into the Mustang Q XT capsule.

## High Quality Standards

- Manufactured to high quality assurance standards in accordance with ISO 9000
- Membrane lots tested for dynamic protein and DNA binding capacity
- Identified by lot number and a unique serial number for complete traceability of manufacturing history, satisfying stringent QC/QA requirements
- Supplied with Certificate of Analysis to confirm Pall quality standards
- Meets USP Biological reactivity tests *in vivo* in accordance with USP Class VI 50 °C and all materials listed in Drug Master File submitted to the FDA.

## Technical Specifications

	XT5	XT140	XT5000
Membrane	Pall modified hydrophilic polyethersulfone (PES)		
Number of Membrane Layers	16	16	16
Membrane Thickness (for 16 layers)	2.2 mm	2.2 mm	2.2 mm
Housing	Polypropylene	Polypropylene	Polypropylene
Maximum Pressure	5 barg (75 psi)	3 barg (43.5 psi)	3 barg (43.5 psi)
Membrane Volume	5 mL	140 mL	5000 mL
Chemistry	Quaternary amine	Quaternary amine	Quaternary amine
Flow Rate	50 mL/min	1.4 L/min	50 L/min
Typical DBC (BSA)	70 mg/mL	70 mg/mL	70 mg/mL

## Ordering Information

### Mustang Q XT5000, Part number; XT5000MSTGQP1

Description: Q chemistry with 5 L membrane volume for clinical manufacturing, 1 per box

### Mustang Q XT140, Part number; XT140MSTGQP05

Description: Q Chemistry with 140 mL membrane volume for pilot scale process development. 1 per box

### Mustang Q XT5, Part number; XT5MSTGQPM6

Description: Q chemistry with 5 mL membrane volume for scale-down process development. The capsule inlet and outlet has female M6 threads and includes connectors and tubing. 1 per box

### Mustang XT5 Jacket, Part number; XT5MSTGJKT

Description: Mustang XT5 Jacket, to be used when operating a chromatography workstation that gives inlet pressures in excess of 5 barg (75 psi) when operated at flow rates of 50 mL/min. 1 per box

**1 bar = 10<sup>5</sup> Pa or 100 kPa**



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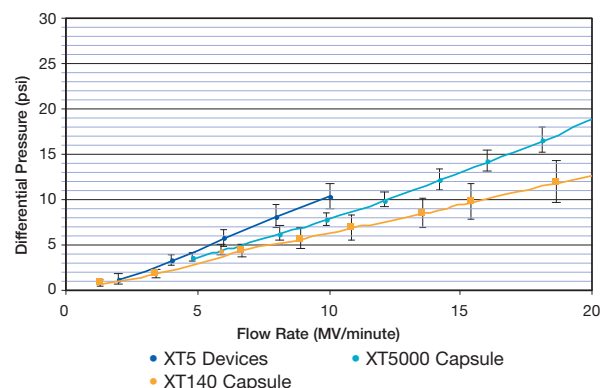
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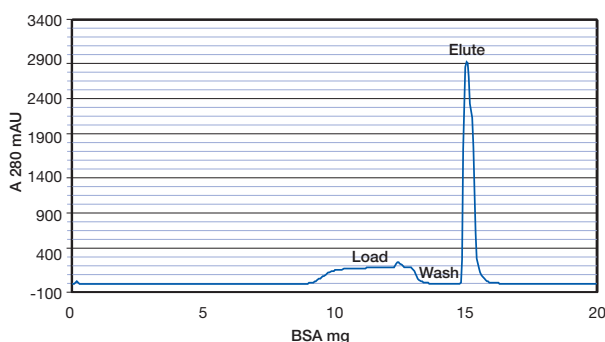
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## Flow Rate vs Differential Pressure for Mustang XT5, Mustang XT140 and Mustang XT5000



## Mustang Q XT140 Capsule BSA Binding Breakthrough Curve at 10 MV/min.



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