

FOR IMMEDIATE RELEASE

CP Biotools Launches MAGMA™ Advanced Pumping System (APS) Gen2 for Perfusion with Scalable, Low-Shear Alternating Tangential Flow (ATF) Filtration with Single-Use Pumps

Princeton, NJ, December 9, 2025 – CP Biotools, a provider of advanced bioprocessing solutions, is pleased to announce the availability of the new MAGMA™ Advanced Pumping System (APS) Gen2. This next-generation low-shear, sanitary diaphragm pump and control system is engineered specifically to control Alternating Tangential Flow (ATF) filtration processes, offering flexibility for upstream process development and manufacturing along with delivering the convenience of a range of single use pump head sizes for different process scales. Ideal for applications such as continuous cell culture for perfusion, N-1 process intensification and viral vector production by using the system with a hollow fiber filter connected to the pump head.

The MAGMA APS distinguishes itself with a “plug-and-play” architecture offering advanced features to control an ATF process along with the convenience of single use pump heads. The advanced features include bioreactor vessel weight control by interface of a vessel scale and a media feed pump; integration of a perfusion pump that starts/stop with ATF filtration action; and ability to read and log up to three single use pressure sensors in the fluid path to characterize liquid flow. And regarding hollow fiber filter selection, there is no limitation as the MAGMA APS is hollow fiber filter brand agnostic, providing complete flexibility in filter selection and allowing customers to leverage existing supply chains or select the optimal filter for specific cell lines. And with the availability of the industry unique MAPS-6 pump model with a 6mL displacement, filter screening could be accomplished with bioreactors with very small working volumes to optimize a process before scale-up.

“Many biopharmaceutical manufacturers are increasingly seeking process intensification solutions that improves process economics and efficiency yet do not require overhauling their entire facility with a need to change their production reactors,” said John Benson, Product Development Manager at CP Biotools. Continuing, “While others are looking at implementing continuous perfusion production bioreactors to take advantage of the documented advantages that this type of production process can offer in certain situations.” Benson emphasizes “The MAGMA APS features an integral weight control system that enables seamless perfusion capability for older or basic bioreactor controllers not originally configured for this process. By directly connecting a scale and feed pump to the system, we eliminate the need for expensive, all-in-one Bioreactor controller upgrades, offering a distinct economic advantage for expanding labs.”

The technical capabilities of the MAGMA APS are designed to address the full spectrum of scalability requirements:

- **Unmatched Scalability:** The system supports bioreactors as small as 100mL—a critical scale for early-stage process and media optimization not supported by competitors—up to production scales exceeding 500L with the APS-4000 under final development.

- Precision Control: The controller features an integral weight control system and integrated permeate pump control both which simplify system architecture and ensure coordinated run/stop cycles.
- Enhanced Monitoring: The unit supports three single-use pressure sensors for continuous monitoring of process fluid path pressures, ensuring optimal filter performance and early detection of fouling.
- Connectivity: The system includes an Ethernet port utilizing the MODBUS and EtherNet/IP protocols for seamless data capture by external computerized systems and some remote-control features.

“The MAGMA APS relies on a pneumatic diaphragm mechanism that generates only enough pressure to push liquid against back-pressure, eliminating the pinch points and shear associated with peristaltic or rotary lobe pumps,” added Benson. “The five pump head sizes with volumes ranging from 6mL to 860mL, made of polysulfone plastic that is gamma-compatible as well as autoclave compatible, are designed for the convenience of single-use, however they are robust enough for re-use. We provide a robust solution that scales linearly from the bench to the production floor.”

The system’s single-use pump heads are constructed from Udel Polysulfone and the diaphragms are platinum-cured silicone and both meeting stringent USP Class VI-industry standards. Life testing includes greater than 1 million cycle durability testing.

For more information on how the MAGMA APS can optimize your perfusion and ATF processes, please visit www.cpbiotools.com/magma

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About CP Biotools

At CP Biotools, our objective is to commercialize CP Biotools’ existing products and develop additional products based on the patents we own with a focus on scalability, flexibility, and cost efficiency. Our proprietary technology provides life-science laboratories and biopharmaceutical companies the processing tools they need to accelerate research, increase productivity and deliver in-demand therapies.

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