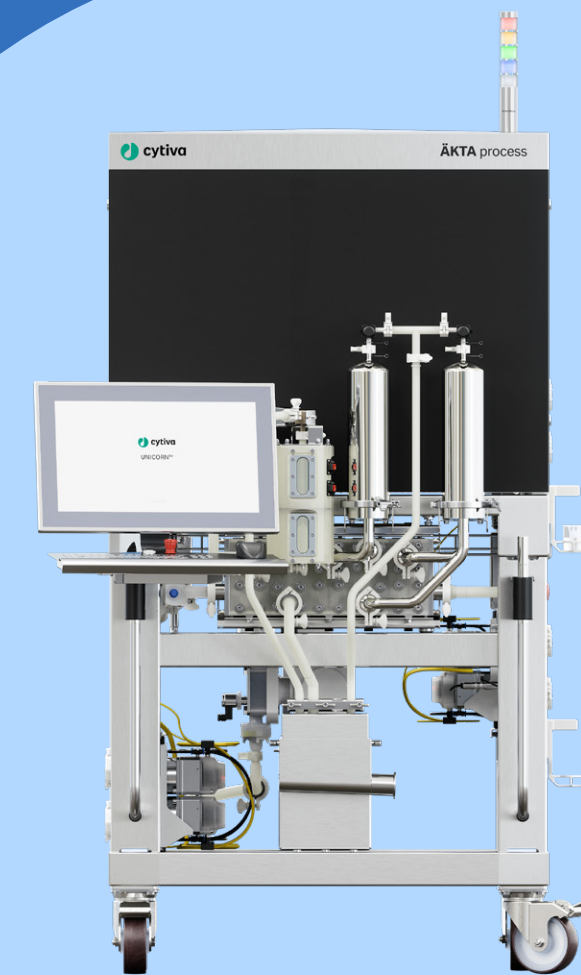


How does the ÄKTA process™ system compare to its predecessor?



Systems at a glance

		Next-generation ÄKTA process™ system	First-generation ÄKTApocess™ system
Configurability		<ul style="list-style-type: none">Over a million possible system designs.Increased configurability (e.g. inline dilution [ILD] functionality, sensors, and particle filters).	<ul style="list-style-type: none">Over a million possible system designs.
Piping size and material		Stainless steel (SS) and polypropylene (PP) PP: 6 mm, 10 mm, and 1" SS: 3/8", 1/2", and 1"	
Flow rate	6 mm PP and 3/8" SS	1–180 L/h	4–180 L/h
	10 mm PP and ½" SS	3–600 L/h	15–600 L/h
	1" SS or PP	10–2000 L/h	45–2000 L/h
Footprint (W × H × D)	6 and 10 mm PP; 3/8" and 1/2" SS	840 × 1931 × 1340 mm <i>Without human-machine interface (HMI) or stack light.</i>	850 × 1670 × 1205 mm <i>Without HMI.</i>
	1" SS or PP	1041 × 1995 × 2111 mm <i>Without HMI or stack light.</i>	1050 × 1900 × 1730 mm <i>Without HMI.</i>

Automation and hardware

	Next-generation ÄKTA process™ system	First-generation ÄKTApocess™ system
Automation solution	<ul style="list-style-type: none">UNICORN™ 7.9 or later versionCustomizable with other automation solutions such as DeltaV™ or PlantPAX™ DCS	<ul style="list-style-type: none">UNICORN™ 7.0.1 or later versionCustomizable with other automation solutions such as DeltaV™ or PlantPAX™ DCS.
Control unit	Rockwell PLC <i>Known industrial controller</i>	CU-960 <i>Cytiva controller</i>
Control architecture	EtherNet/IP™ based architecture with robust industrial instruments and components	<ul style="list-style-type: none">PROFIBUS™UniNet (CAN-bus)
External communication	<ul style="list-style-type: none">EtherNet/IP™ gateway.Open Platform Communications Unified Architecture (OPC UA) improves connectivity to UNICORN™. <i>Easier interface to work with and meets current cyber security needs.</i>	<ul style="list-style-type: none">PROFIBUS™ gatewayOPC Data Access (OPC-DA)OPC-A&EOPC-HDA
Interactive Process Picture in UNICORN™	Expanded interactivity <ul style="list-style-type: none">View most important data.Set manual instructions.Guidance for Intelligent Packing.Set and view alarm limits for pressure and view alarms for each component for easier troubleshooting.	Limited interactivity
Phase library	<ul style="list-style-type: none">Includes pre-defined phases for Intelligent Packing, column performance, and equilibration.Allows user-defined or edited phases.	<ul style="list-style-type: none">No predefined phases
Human-machine interface (HMI)	Large (24", 16:9) display and ergonomic keyboard and mouse support easier operation in a cleanroom environment	Standard (19", 4:3) display with an integrated touchpad
System status indication	Stack light on top of system provides better visibility of real-time control system status. <i>Signaling based on standard IEC/EN 60073</i>	Indicator lights on system front.
Cyber security	<ul style="list-style-type: none">Segmented internal networksCentral firewall	<ul style="list-style-type: none">More end-user responsibility required for cyber securityNo built-in hardware firewall

Flow rate accuracy, gradient performance, and inline dilution

	Next-generation ÄKTA process™ system	First-generation ÄKTAprocess™ system
Flow rate measurement accuracy	±1.0% or 0.10 L/h (6 mm, 10 mm, 3/8", and 1/2") ±1.0% or 1.0 L/h (1")	±2 % or 0.5 L/h (6 mm, 10 mm, 3/8", and 1/2") ±2 % or 2 L/h (1")
Inline dilution	Yes <i>Improved buffer management saves time, labor, and space without compromising quality.</i>	No
Number of particle filters	0, 1, or 2 <ul style="list-style-type: none">Decreased need for buffer filtration pre-system.Ability to switch between filters ensures longer runs.When using dual filters, automatic filter change can be programmed based on the pressure limit.	0 or 1

Column packing, cleaning, and maintenance

	Next-generation ÄKTA process™ system	First-generation ÄKTAprocess™ system
Intelligent Packing support	Enhanced support <ul style="list-style-type: none">No column disconnection needed between packing and process.The column valve for two columns can be used for packing AxiChrom™ columns.AxiChrom™ column hardware traceable in the column list.Feedback during packing from the interactive process picture.	Standard support <ul style="list-style-type: none">Clean-in-place valves used and connected to column.Column disconnection required between packing and process.
Pre-defined Intelligent Packing methods	Predefined methods include phases for the development of packing, unpacking, priming and column performance test methods for AxiChrom™ columns. <i>More settings and flexibility compared to first-generation system.</i>	Intelligent Packing wizard
Column list	<ul style="list-style-type: none">Supports all AxiChrom™ column sizes.Makes it easy to create the column type and save relevant parameters for packed columns.	<ul style="list-style-type: none">Supports only 50–200 mm AxiChrom™ columns.
General column packing support	<ul style="list-style-type: none">Predefined column performance test in UNICORN™ software.Column logbook to store and track packed columns and select hardware for packing.	<ul style="list-style-type: none">No predefined column test performance or column logbook.
Clean-in-place (CIP)	<ul style="list-style-type: none">Clean-in-place (CIP) valve placement together with inlet valves drives automated cleaning.Instructions for creating the CIP method to fit the specific configuration.	<ul style="list-style-type: none">Clean-in-place (CIP) valves
Swivel mount of valves	Available for all system sizes <i>Easier and faster valve maintenance.</i>	Only on 1" system
Common waste	<ul style="list-style-type: none">Placed higher from ground (300 mm) for easier access and connectionImproved cup design with larger volume and better splash protection	<ul style="list-style-type: none">150 mm from groundStandard waste cup size without splash guard
Safety	Standard: IEC/EN 60204-1 <i>Pressure safety system performance according to industrial safety level PLd</i>	Standard: IEC/EN 61010-1
Maintenance manager	Expanded data collection to support easier maintenance.	Limited amount of data collected.

Sensors at a glance

	Next-generation ÄKTA process™ system	First-generation ÄKTApocess™ system
Air sensors	Max sensitivity: high, medium, low <i>Can be calibrated</i>	Max sensitivity: high, medium, low
pH sensor	Range: pH 0–14 Acceptance range: pH 2–12 Accuracy: pH ±0.1 <ul style="list-style-type: none">Offline calibration of pH and sensor traceability simplifies and speeds up calibration.Full traceability and documentation of calibration data.pH electrode resistance indicates condition of pH monitoring.Built-in temperature sensor auto-compensates pH reading for temperature.	Range: pH 0–14 Acceptance range: pH 2–12 Accuracy: ±0.15 <ul style="list-style-type: none">No offline calibration
Conductivity sensor	Range and accuracy: 0.001–0.1 mS/cm, ±4% 0.1–50 mS/cm, ±2% 50–100 mS/cm, ±2.5% 100–500 mS/cm, ±4% <ul style="list-style-type: none">Sensor auto-saves last eight calibrations.Accurate low conductivity readings make it easier to see when the system is fully rinsed from the CIP or storage solution.	Range and accuracy: 0.1–100 mS/cm, ±2% or 0.5 mS/cm 100–300 mS/cm, ±4%
Pressure sensor	Range: 0–11 bar g Accuracy: ±0.05 bar g between 0–10 bar g <i>Sensor automatically compensates for atmospheric pressure</i>	Range: 0–11 bar Accuracy: ±0.12 bar between 0 and10 bar <i>Sensor must be calibrated for changes in atmospheric pressure</i>

	Next-generation ÄKTA process™ system	First-generation ÄKTApocess™ system
Temperature sensor	Range: 0–99°C Accuracy: ± 1°C between 2°C and 40°C	Range: 0–99°C Accuracy: ±2°C between 2°C and 40°C
UV sensor	Range: –6 to 6 absorbance units (AU) Acceptance range: 0–2 AU and 0–4 OD (5 mm path length) Accuracy: linearity ±2% <ul style="list-style-type: none">3-wavelengthLinearity calibration with built-in calibration filtersDefined path lengthPresents both AU and optical density (OD)UV lamp: longer lifetime, lamp condition test, possibility to turn off the lamp	Range: –6 AU to 6 AU Acceptance range: 0–2 AU Accuracy: linearity ±2% <ul style="list-style-type: none">Single (280 nm) or 3-wavelengthPresents only AU

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