

TECHNICAL DATA SHEET

Levon™ AC200 Programmable Servo Spin Coater

Servo motor drive · PLC + 7-inch touchscreen · fragments to 8-inch wafers · AC200-S-PP / -SE / -PE / -SE-PLUS · custom process systems



Levon™ AC200 Programmable Servo Spin Coater — AC200 configurations

The Levon™ AC200 Programmable Servo Spin Coater family comprises four configurations with their own specifications, plus custom developing, edge removal/back washing and dispensing/back washing systems. Image shown for reference; final configuration is confirmed in the quotation.

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Revision Date **10/20/2026**

SECTION I

Product Overview

Levon™ AC200 Programmable Servo Spin Coater is a family of servo-driven programmable spin coaters with an industrial design, PLC control, a 7-inch full-color touchscreen and a PC transparent cover, handling substrates from fragments to 8-inch wafers. Four configurations are available — AC200-S-PP, AC200-SE, AC200-PE and AC200-SE-PLUS — and custom process configurations are quoted on request.

Every AC200 standard configuration is driven by a servo motor, runs single steps of up to 3,000 s at 0.1 s resolution and can be recessed into a glovebox to reduce the operating height. The configurations differ in housing and process cup, speed and acceleration, standard trays, size and options; each has its own specification block below, and values are not interchangeable between configurations.

SECTION II

Core Advantages

- **Servo motor drive** Servo motor drive across the four standard configurations.
- **Housing, process cup and PC cover** AC200-S-PP: PP housing with PC transparent cover. AC200-SE: HDPE process chamber with solvent-resistant PC cover. AC200-PE and AC200-SE-PLUS: HDPE cup with solvent-resistant PC cover.
- **Fragments to 8-inch wafers** Handles fragments and wafers up to 8 inches; see the model-specific substrate limits.
- **Forward and reverse rotation** AC200-SE and AC200-SE-PLUS: bidirectional (forward and reverse) rotation.
- **PLC control, 7-inch touchscreen** Industrial machine design with PLC control and a 7-inch full-color touchscreen for operation.
- **Glovebox recessed installation** Can be recessed (embedded) into a glovebox to reduce the operating height.
- **Automatic dispensing ports** AC200-S-PP, AC200-SE and AC200-PE: integrated four-channel automatic dispensing ports, upgradeable to multi-channel dispensing.
- **Backside and edge process options** AC200-S-PP: integrated backside cleaning and edge debonding. AC200-SE: BSR and EBR can be added; an integrated rinse/develop module with splash guard is optional. AC200-PE and AC200-SE-PLUS: BSR and EBR and spill-proof cleaning/developing functions can be added.

SECTION III

Specifications

Technical data — AC200

Specifications	
Parameter	Specification
Brand	Levon™ by ACS Material
Product Name	Levon™ AC200 Programmable Servo Spin Coater
Models	AC200-S-PP / AC200-SE / AC200-PE / AC200-SE-PLUS
SKU #	LVAC20PP / LVAC20SE / LVAC20PE / LVAC20PL
Product type	Programmable servo spin coater
Drive	Servo motor
Control and operation	PLC control, 7-inch full-color touchscreen
Cover	PC transparent cover
Single-step duration	3,000 s (maximum)
Time resolution	0.1 s
Substrate size range	Fragments to 8-inch wafers; see the model-specific substrate limits
Installation	Can be recessed into a glovebox to reduce the operating height
Warranty / quality assurance	AC200-S-PP / AC200-SE: 1-year product warranty; AC200-PE / AC200-SE-PLUS: 1-year product quality assurance

Configurations — AC200 series

Configurations				
Parameter	AC200-S-PP	AC200-SE	AC200-PE	AC200-SE-PLUS
SKU #	LVAC20PP	LVAC20SE	LVAC20PE	LVAC20PL
Spin speed	20–10,000 rpm	20–10,000 rpm (no load)	Max. 10,000 rpm (no load)	Max. 8,000 rpm (no load)
Acceleration	20–50,000 rpm/s	20–50,000 rpm/s (no load)	Max. 50,000 rpm/s (no load)	Max. 10,000 rpm/s (no load)
Speed resolution	1 rpm	1 rpm	1 rpm	±1 rpm
Substrate size range	1 cm debris to max. 8-inch standard wafers	Fragments to 8-inch circular wafers	Fragments smaller than 1 cm to 8-inch circular substrates	Fragments smaller than 1 cm to max. 8-inch standard wafers
Housing / process cup	PP housing, PC transparent cover	HDPE process chamber, PC cover	HDPE cup, PC cover	HDPE cup, PC cover
Dimensions [W × D × H]	385 × 540 × 300 mm	412 × 510 × 295 mm	415 × 500 × 300 mm	598 × 556 × 286 mm
Packing	Carton packaging	Wooden case	Wooden case	Wooden case

AC200-S-PP — SKU LVAC20PP (additional specifications)

AC200-S-PP	
Parameter	Specification
Programs	100 recipes with 100 steps each; expandable capacity available
Dispensing	Integrated 4-channel auto-dispensing ports; upgradeable to multi-channel dispensing (optional)
Standard trays	10 mm, 25 mm, 2-inch
Vacuum	Digital display of vacuum adsorption pressure; adjustable vacuum pressure
Vacuum input requirement	Minimum vacuum flow rate 15 L/min or more
Backside cleaning and edge debonding	Integrated

Uniformity data — AC200-S-PP

Uniformity data				
Wafer size	Within-wafer	Wafer-to-wafer	Film thickness	Photoresist
4-inch	±0.49%	±0.55%	500 nm	RZJ304 (<10 CP)
6-inch	±0.76%	±0.91%	1300 nm	AZ1500 (20 CP)
8-inch	±0.92%	±1.10%	1350 nm	AZ1500 (20 CP)
Note	Values apply only to the listed wafer sizes, film thicknesses and photoresists.			

AC200-SE — SKU LVAC20SE (additional specifications)

AC200-SE	
Parameter	Specification
Speed accuracy	<±1 rpm
Process time setting	0–3,000 s/step
Time setting accuracy	0.1 s
Rotational coating uniformity	<±3% within 6 inches
Rotation	Bidirectional
Programs	100 groups of 100 steps; more can be extended
Dispensing	Four-way automatic dispensing port; upgradeable to multi-way automatic dispensing
Available vacuum tray diameters	10 mm, 25 mm, 2-inch
Options	BSR and EBR can be added; integrated rinse/develop module with splash guard (optional)

Uniformity data — AC200-SE

Uniformity data				
Wafer size	Within-wafer	Wafer-to-wafer	Film thickness	Photoresist
4-inch	±0.49%	±0.55%	500 nm	RZJ304 dilution (<10 CP)
6-inch	±0.76%	±0.91%	1300 nm	AZ1500 (20 CP)
8-inch	±0.92%	±1.10%	1350 nm	AZ1500 (20 CP)
Note	Values apply only to the listed wafer sizes, film thicknesses and photoresists.			

AC200-PE — SKU LVAC20PE (additional specifications)

AC200-PE	
Parameter	Specification
Speed precision	<±1 rpm
Process time setting	0–3,000 s/step
Time setting precision	0.1 s
Programs	100 recipes with 100 steps each; more can be extended
Dispensing	Four-way automatic dispensing port; upgradeable to multi-way automatic dispensing
Vacuum trays (standard)	10 mm, 25 mm, 2-inch, 4-inch or 6-inch diameter
Weight	20 kg
Options	BSR and EBR can be added; spill-proof cleaning and developing functions can be added

Uniformity data — AC200-PE

Uniformity data				
Wafer size	Within-wafer	Wafer-to-wafer	Film thickness	Photoresist
4-inch	±0.49%	±0.55%	500 nm	RZJ304 (<10 CP)
6-inch	±0.76%	±0.91%	1300 nm	AZ1500 (20 CP)
8-inch	±0.92%	±1.10%	1350 nm	AZ1500 (20 CP)
Note	Values apply only to the listed wafer sizes, film thicknesses and photoresists.			

AC200-SE-PLUS — SKU LVAC20PL (additional specifications)

AC200-SE-PLUS	
Parameter	Specification
Rotation	Forward and reverse
Weight	30 kg
Power input — 110 V type	100–120 V, single-phase, 1.7 kW
Power input — 220 V type	200–230 V, single-phase, 1.7 kW
Vacuum input requirement	0.06–0.09 MPa; minimum vacuum flow rate >15 L/min
Vacuum interface	Equipment backboard outlet, 6 mm outer diameter
Waste disposal interface	Equipment backboard outlet, 19 mm outer diameter
Options	BSR and EBR can be added; spill-proof cleaning and developing functions can be added

Custom configurations — AC200-DEV-CTM / -EBR-CTM / -COT-CTM

Custom configurations			
Parameter	AC200-DEV-CTM	AC200-EBR-CTM	AC200-COT-CTM
Process	Automatic desktop developer	Automatic desktop spin coater — edge removal + back washing	Automatic desktop spin coater — dispensing + back washing
Substrate range	From fragments to wafers up to 8 inches	Standard wafers up to 8 inches	Standard wafers up to 8 inches
Maximum speed	10,000 rpm (no load)		
Maximum acceleration	50,000 rpm/s (no load)		
Speed accuracy	±1 rpm		
Speed resolution	0.1 rpm		
Process cup / inner cavity	HDPE cup	HDPE inner cavity	HDPE inner cavity
Chucks / load trays	PPS vacuum suction or limited-position chuck/tray, selected according to substrate size; listed sizes: 10 mm, 25 mm, and 2–6 inches		
Programs	100 groups with 100 steps each; max. 3,000.0 s per step, 0.1 s resolution; programs can be saved, invoked, modified and deleted		
Machine size [L × W × H]	800 × 550 × 550 mm, excluding pressure tanks	710 × 550 × 550 mm, excluding pressure tanks	700 × 550 × 500 mm, excluding pressure tanks
Installation size [L × W × H]	1100 × 850 × 850 mm, excluding pressure tanks	1010 × 850 × 850 mm, excluding pressure tanks	1000 × 850 × 850 mm, excluding pressure tanks
Machine weight	45 kg	35 kg	45 kg

AC200-DEV-CTM — Automatic Desktop Developer (custom configuration, quoted on request)

AC200-DEV-CTM	
Parameter	Specification
Swing arm	Automatic development swing arm: aluminum alloy coated with PTFE; automatic lifting and swinging; swinging speed 0–30°/s, adjustable; nozzle fixture height manually adjustable

AC200-DEV-CTM	
Parameter	Specification
Pipeline	3 channels: developing liquid, pure water, nitrogen; retract function; adjustable liquid flow rate
Liquid supply	Developing liquid and pure water: one 10 L pressure tank each, with low liquid level alarm sensor (tank Ø330 × 580 mm)
Nozzles	Cylindrical or fan-shaped nozzle for developing liquid, pure water and nitrogen
Acceptance criteria	Linear patterns developed with 2.38% TMAH using 2 PUDDLE, following adhesion promotion and exposure; line width not smaller than 5 µm; CD uniformity not greater than ±4% within and between chips. Sampling: 4-inch wafers, 5 points per wafer, 3 wafers.

AC200-EBR-CTM — Automatic Desktop Spin Coater (Edge Removal + Back Washing) (custom configuration, quoted on request)

AC200-EBR-CTM	
Parameter	Specification
Edge removal swing arm	Aluminum alloy; automatic lifting and swinging; nozzle fixture height manually adjustable; edge removal distance 3–5 mm; edge removal accuracy ±0.5 mm; wafers 3 to 8 inches
Back washing	Aluminum alloy back washing fixture, height manually adjustable; wafers 4 to 8 inches
Pipeline and supply	2 channels (edge removal liquid, back washing liquid) from two 10 L pressure tanks with low liquid level sensors (tank Ø330 × 580 mm); retract function; adjustable liquid flow rate
Acceptance criteria	Using AZ1500 (20 cp): Step 1, 500 rpm for 5 s at 500 rpm/s; Step 2, 2,500 rpm for 35 s at 2,000 rpm/s. Prebake: 100°C for 100 s. The resulting film thickness is approximately 1.3 µm. After prebake, film thickness within 5 mm of the edge is measured using an optical film-thickness meter (step meter). Reported criteria by wafer diameter: 4-inch <±1.5%, 6-inch <±2%, 8-inch <±2.5%. Sampling: 5 points for 4-inch wafers, 9 points for 6-inch wafers and 13 points for 8-inch wafers; 3 wafers of each size.

AC200-COT-CTM — Automatic Desktop Spin Coater (Dispensing + Back Washing) (custom configuration, quoted on request)

AC200-COT-CTM	
Parameter	Specification
Dispensing swing arm	Aluminum alloy; automatic lifting and swinging; nozzle fixture height manually adjustable
Back washing	Aluminum alloy back washing fixture, height manually adjustable; wafers 4 to 8 inches
Dispensing liquid supply	The bottle is placed directly into a 10 L pressure tank (liquid is not poured into the tank); maximum tank size 10 L, inner barrel height 285 mm, inner diameter 209 mm; size determined by the customer's bottle
Back washing liquid supply	Separate 10 L pressure tank with low liquid level sensor (tank Ø330 × 580 mm); retract function; adjustable liquid flow rate
Acceptance criteria	Using AZ1500 (20 cp): Step 1, 500 rpm for 5 s at 500 rpm/s; Step 2, 2,500 rpm for 35 s at 2,000 rpm/s. Prebake: 100°C for 100 s. The resulting film thickness is approximately 1.3 µm. After prebake, film thickness within 5 mm of the edge is measured using an optical film-thickness meter (step meter). Reported criteria by wafer diameter: 4-inch <±1.5%, 6-inch <±2%, 8-inch <±2.5%. Sampling: 5 points for 4-inch wafers, 9 points for 6-inch wafers and 13 points for 8-inch wafers; 3 wafers of each size.

Accessories — Vacuum trays

Accessories	
Accessory	Description
Vacuum trays	AC200-S-PP: standard trays in 10 mm, 25 mm and 2-inch sizes. AC200-SE: available tray diameters are 10 mm, 25 mm and 2-inch. AC200-PE: standard tray diameters are 10 mm, 25 mm, 2-inch, 4-inch or 6-inch.

Scope of delivery

— **Standard configuration:** one AC200 main unit in the ordered configuration; AC200-S-PP: standard trays in 10 mm, 25 mm and 2-inch sizes; AC200-PE: standard vacuum tray diameters 10 mm, 25 mm, 2-inch, 4-inch or 6-inch (as quoted). AC200-SE tray diameters (10 mm, 25 mm, 2-inch) are confirmed on the quotation.

— **Optional, not included** — multi-channel dispensing upgrade; BSR/EBR and cleaning/developing modules where listed for the configuration; custom configurations quoted separately.

SECTION IV

Applications

For servo-driven spin coating of fragments up to 8-inch wafers with PLC/touchscreen recipe control, including glovebox recessed installation; custom configurations cover developing, edge removal/back washing and dispensing/back washing. Application areas include thin-film research for perovskite solar cells and organic optoelectronic semiconductor devices.

Product value: one servo spin-coater platform in four configurations with separately published specifications, plus custom process systems on quotation.

Revision Date: 10/20/2026

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