COST EFFECTIVE EQUIPMENT | APOGEE® SPIN DEVELOPERS

Apogee spin developer features and benefits

Cost Effective Equipment has built its own process tools since 1987, and the Apogee spin developer runs on the same spin platform as the Apogee spin coater. This sheet goes through the features CEE builds into every Apogee developer and what each one means for you in daily use.

The Apogee applies developer by spray or puddle, then rinses and spins the substrate dry under one programmed recipe. It runs as a benchtop tool, flange-mounted in your own bench or as a module in CEE's X-Pro II workstation.

Apogee spin developer with the chimney hood open

0.2 rpm
speed resolution and repeatability

4
automated spray or stream nozzles, run at the same time

12,000 rpm
top speed, Apogee 200 (6,000 rpm on the Apogee 450)

450 mm
largest round substrate, Apogee 450

Feature by feature

Feature	What it means for you
SAFETY	
Chuck vacuum watched by a digital MEMS sensor	If vacuum drops too low, the spin stops before the substrate can come loose.
Lid interlock	The spin won't start with the lid open, which keeps hands and chemical spray away from the rotating chuck.
Vibration sensing	An off-centre substrate shows up as vibration, so it's caught early.
Built-in drain and fume exhaust	Waste chemicals are guided out of the machine and fumes are drawn away during the spin. A waste-bottle-full sensor and programmable exhaust flow are available as options.
DataStream™ user management	You set who can run the tool and who can create or edit recipes.

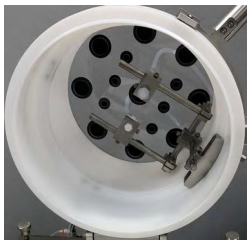
Feature	What it means for you
DURABILITY	
Indirect motor drive	The motor sits outside the chemical path and drives the spindle by belt, so developer and solvents can't flood it.
Oversized bearings and belt drive	Moving parts are generously sized for the load they carry, so they last.
Brushless motor	There are no brushes to wear out or shed particles into the process.
Teflon™ solvent trap	Liquid drawn down the vacuum line is caught before it can reach the vacuum valve and sensor.
Semiconductor-grade white powder-coated stainless steel	A hard-wearing cleanroom finish that wipes clean and stands up to daily use.

Feature	What it means for you
CHAMBER AND SPLASH CONTROL	
Chimney hood	Exhaust air flows evenly down over the substrate, and splashes and droplets stay inside the bowl.
Integrated chimney, splash ring and bowl	Spray thrown off the spinning substrate is caught by the splash ring and led down to the drain, away from the wafer.
Rod-and-socket nozzle mounts	Nozzle position and angle can be adjusted freely to suit the process.
Optional clear lid with removable airflow plugs	You can watch the process and tune the airflow through the lid.
Integrated drain and exhaust separator	Exhaust airflow stays steady from one run to the next, which keeps results repeatable.
Auto-drain separator (option)	Solvent and aqueous waste go down separate paths, so positive and negative resist processes can share one tool.

CEE builds the Apogee to repeat, from one wafer to the next and from one machine to another. That comes from its controls, its manufacturing quality systems and a design meant for both the lab and the fab.

Feature	What it means for you
DATASTREAM CONTROL AND DATA	
Built-in touchscreen running DataStream™	Recipes are written and run on the tool itself, with unlimited steps per recipe timed to 0.1 seconds.
Critical parameters monitored and logged	Spin speed, acceleration, chuck vacuum, active dispenses, room temperature, humidity and vibration are checked against their set points on every run.
Real-time charts	You can watch a process as it runs and spot drift straight away.
Web browser access	From any browser outside the cleanroom, engineers can create, upload and download recipes and monitor runs live.
Process logs in Excel® format	Every run is on record for quality checks and troubleshooting.

Clear chimney lid with removable airflow plugs

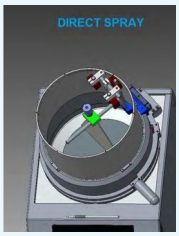


Rod-and-socket nozzle mounts inside the chimney

Splash ring around the spin bowl

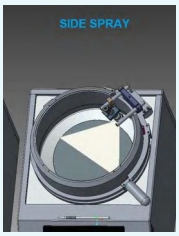
Choosing the dispense

Developer is dispensed from up to four automated nozzles, fed from pressure cans and run at the same time, so one tool can handle more than one developer chemistry. DI water rinses the top and back of the substrate to stop development cleanly.



Direct spray

Spray nozzles sit directly over the substrate at 90°. This is the standard set-up for spray development.



Side spray

As an option, nozzles sit outside the wafer edge and spray at 45°, which keeps them clear of the area above the substrate.

Puddle

A stream nozzle flows developer onto the substrate to build a puddle, for puddle development processes.

Pressure can with suckback

Each line draws from a 1 gallon (4 litre) can under low-pressure nitrogen or air. The dispense valve gives adjustable, repeatable flow, and a suckback valve draws fluid back into the nozzle after each dispense so it doesn't drip.

A dispense control box sets the reservoir pressure for each developer can, and each valve can be adjusted for flow rate and for suckback volume and speed.

The developer takes every Apogee spin chuck, including standard, porous, captive and recessed chucks, along with custom designs.

Buying through SiSTEM

SiSTEM Technology is CEE's appointed distributor for the UK and Europe. We quote and supply the full Apogee spin developer range. Installation and training are arranged and quoted, and delivered by our UK and European after-sales team, who also look after the one-year warranty in territory. When something needs attention, we're the people you call.

Talk to us about your process

Send us your substrate sizes and the developer and rinse chemistry you use, and we'll put together a quote for the right set-up. If your substrate is unusual, CEE's engineers can review drawings or photos with us before we quote.

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