

GateKeeper® Gas Purification System Z3 Series for 400, 500, 600 NM³/HR

Continuous high-flow, point-of-use purified XCDA® (Extreme Clean Dry Air) purge gas at a low cost of ownership

The GateKeeper® Gas Purification System (GPS), Z3 series, is the latest continuous service gas purification system from Entegris. The system brings advanced technology to gas purification, providing semiconductor manufacturers with an innovative, efficient and cost-effective solution to purify purge gases used in dry and immersion-based lithography tools.

The new "Z3" media represents the latest advancement in purification technology from Entegris, providing for outlet purity in the parts-per-trillion (ppt) levels. The system uses ambient temperature purification, so heating is not required for purification. This means resource conservation and lower energy costs. The GPS effectively and efficiently removes contaminants such as volatile acids and bases, refractory compounds, condensable organics and moisture from CDA (air) gas.

APPLICATIONS

- Photolithography
- Stocker cleaning and purging
- FOUP cleaning and purging
- Other applications that require XCDA purge gas



FEATURES & BENEFITS

- Power failure will not damage the purification system
- Purifies to ppt (parts-per-trillion) levels
- Low pressure drop means no changes to inlet pressure are required
- Self-regenerating purifiers provide the lowest cost of ownership
- Ambient temperature purification means lower energy costs and resource conservation
- CE and SEMI® certified
- Start-up service is provided, making it easy to integrate the unit
- Ethernet connection allows for remote monitoring capability
- Designed for easy field maintenance and upgrades
- Available worldwide through Entegris' global infrastructure

SPECIFICATIONS

Model	GPS400Z3	GPS500Z3	GPS600Z3
Gases purified	CDA (air)		
Media type	Inorganic		
Contaminants removed	Volatile acids <1 ppt		
	Volatile bases <10 ppt		
	Refractory compounds <1 ppt		
	Condensable organics (measured as Toluene): <1 ppt		
	Moisture <100 ppt		
Operating pressure range	5.51–17.23 bar (80 – 250 psig)		
Pressure drop	<14.5 psi @ 100 psig and max rated flow		
Maximum flow rate	400 Nm ³ /hr (6211 SLM)	500 Nm ³ /hr (7764 SLM)	600 Nm ³ /hr (9317 SLM)
Gas operating temperature	15°–40°C (60°–104°F)		
Outlet filtration (ISO class 1)	<10 particles per m ³ @ 0.1 μm		
	<2 particles per m ³ @ 0.2 μm		
Leak rating	1 × 10 ⁻⁹ atm cc/sec		

SAFETY FEATURES

Feature	Description	GPS series
Earth leakage circuit breaker	Provides additional electrical protection to the system.	Yes
Over temperature rise condition	Monitored via thermocouple. Heaters sized to prevent runaway conditions. As a secondary precautionary device, a high-temperature hardware interlock is included on all systems.	Yes
Rate-of-rise detector	If the detector senses a rapid increase in temperature inside the system enclosure, an EMO alarm will be activated and shut down the system.	Yes
EMO button	When activated, power is removed from the main enclosure. The front panel and controller remain powered. Process gas flow is shut off.	Yes
Remote EMO	Provides input for remote EMO activation. In the event of an EMO shutdown, the system will send an output signal to an external sensing device that alerts the facility of the alarm.	Yes
Remote alarm	In the event of a minor alarm in the system not requiring an EMO shutdown, the system will send an output signal to an external sensing device that alerts the facility of the alarm.	Yes
Visual alarm	Alarm conditions will result in a visual alarm on the top of the system.	Yes
Audible alarm	Alarm conditions will result in an audible alarm.	Yes

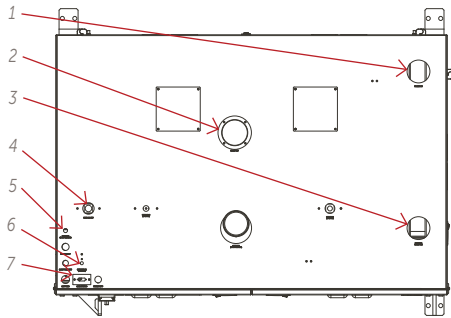
FACILITY SPECIFICATIONS

Model	GPS400Z3	GPS500Z3	GPS600Z3
Process gas input	Mechanical connection	2" tube stub	
Process gas output	Mechanical connection	2" tube stub	
Ventilation	Mechanical connection	4" duct	
	Exhaust flow	100 cfm	
Power requirements	Mechanical connection	3-pin mechanical disconnect	
	Power requirements	380–480 VAC 3 phase	
	Power consumption	100W at idle and online	
		15000W at regen	
Regeneration	Regen duration	<31 hours for each purifier bed	
Regen gas output	Mechanical connection	1" tube stub	
Instrument air	Mechanical connection	¼" compression fitting	
	Gas and pressure	CDA or N ₂ @ 5.5–10.3 bar (80–150 psig)	
Physical requirements	Mounting	Floor	
	Recommended maintenance space	3 feet in front and back of system	
	Operating conditions	15°–40°C (60°–104°F) indoor	
	Humidity	10%–90% RH noncondensing	
Shipping weight	1361 kg (3000 lbs)		

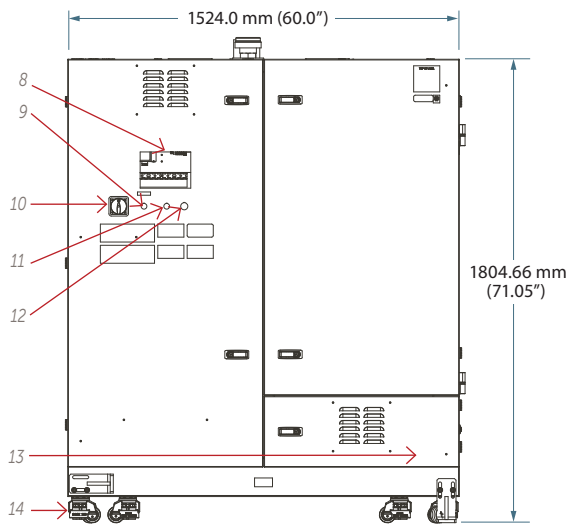
Note: It is the customer's responsibility to ensure that the equipment is installed according to local building code requirements.

DIMENSIONS

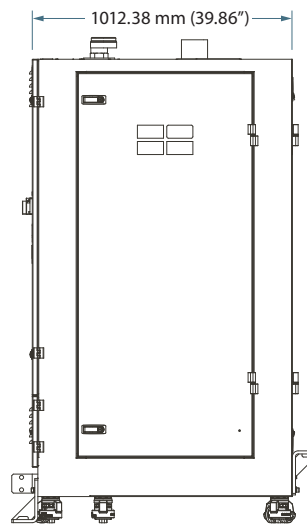
Models GPS400Z3, GPS500Z3, GPS600Z3



Front View



Side View



DIMENSIONS (CONTINUED)

System features		
1	Process gas input	Inlet gas (not purified)
2	Exhaust vent	Allows ventilation
3	Process gas output	Outlet gas (purified)
4	Regen gas connections	Regen gas vent
5	Power	System power connection
6	Instrument air	Supplies gas to the air operated control valves
7	Communication ports	Ethernet port and remote alarm interface
8	Touch screen	Provides detailed system status and information
9	EMO	When activated, power is removed from the cabinet and the system shuts down
10	Main system switch	Powers the system on and off
11	Start/Clear button	Used to begin system operations and to clear alarms
12	USB port	USB connection for data log retrieval and system updates
13	Sample box	Contains sample and leak check ports
14	Casters	Casters with integrated leveling feet; includes seismic restraints

ENCLOSURE INFORMATION

The GateKeeper Z3 series enclosure is designed for indoor applications only. The enclosure includes leveling feet with integrated casters and seismic restraint brackets to secure the system to the floor. The front doors provide easy access to all serviceable components.

ORDERING INFORMATION

Model	Description
GPS400Z3	Enclosed model for use with applications requiring a flow rate up to 400 m ³ /hr
GPS500Z3	Enclosed model for use with applications requiring a flow rate up to 500 m ³ /hr
GPS600Z3	Enclosed model for use with applications requiring a flow rate up to 600 m ³ /hr

Options	GPS series
Passive backup (online bed stays online during shutdown)	Yes
Automatic bypass valve	Yes
Moisture indicator	Yes
Process gas mass flowmeter with totalizer	Yes

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

TERMS AND CONDITIONS OF SALE

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