

GateKeeper® Gas Purification System Z2 Series

Continuous high-flow, point-of-use, purified XCDA® gas at a low cost of ownership

Advanced Technology in Gas Purification

The GateKeeper® Gas Purification System (GPS), Z2 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. It delivers purified Extreme Clean Dry Air (XCDA®) gas to today's scanner platforms, including immersion lithography tools.

The new "Z2" 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 and non-condensable organics and moisture from CDA (air).

MODELS AVAILABLE

| Model | Description |
|----------|---|
| GPS90Z2 | Enclosed model for use with applications requiring a flow rate up to 90 m ³ /hr |
| GPS100Z2 | Enclosed model for use with applications requiring a flow rate up to 100 m ³ /hr |
| GPS120Z2 | Enclosed model for use with applications requiring a flow rate up to 120 m ³ /hr |



APPLICATIONS

- Photolithography
- FOUF cleaning and purging
- Wafer and reticle stocker purging
- Applications that require XCDA purge gas

FEATURES & BENEFITS

- Power failure will not damage the purification system
- Purifies to parts-per-trillion (ppt) 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, CSEI (China), 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 | GPS90Z2 | GPS100Z2 | GPS120Z2 |
|---------------------------|--|------------------------------------|------------------------------------|
| Gases purified | CDA (air) | | |
| Media type | Inorganic | | |
| Contaminants removed | Volatile acids (measured as SO ₂): <1 ppt | | |
| | Volatile bases (measured as NH ₃): <10 ppt | | |
| | Refractory compounds (measured as HMDSO): <1 ppt | | |
| | Condensable organics (measured as Toluene): <1 ppt | | |
| | Moisture (H ₂ O): <100 ppt | | |
| Operating pressure range | 5.51–17.23 bar (80–250 psig) | | |
| Pressure drop | <15 psi @ 100 psig and max rated flow | | |
| Maximum flow rate | 90 Nm ³ /hr (1397 slm) | 100 Nm ³ /hr (1553 slm) | 120 Nm ³ /hr (1863 slm) |
| Gas operating temperature | 15°–40°C (60°–104°F) | | |
| Outlet filtration | ISO® Class 1 (<10 particles per m ³ at 0.1 µm, <2 particles per m ³ at 0.2 µm) | | |
| Leak rating | 1 × 10 ⁻⁹ atm cc/sec | | |

SAFETY FEATURES

| Features | Description |
|---------------------------------|---|
| Earth leakage circuit breaker | Provides additional electrical protection to the system. |
| 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. |
| 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. |
| EMO button | When activated, power is removed from the main enclosure. The front panel and controller remain powered. Process gas flow is shut off. |
| 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. |
| 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. |
| Visual alarm | Alarm conditions will result in a visual alarm on the top of the system. |
| Audible alarm | Alarm conditions will result in an audible alarm. |

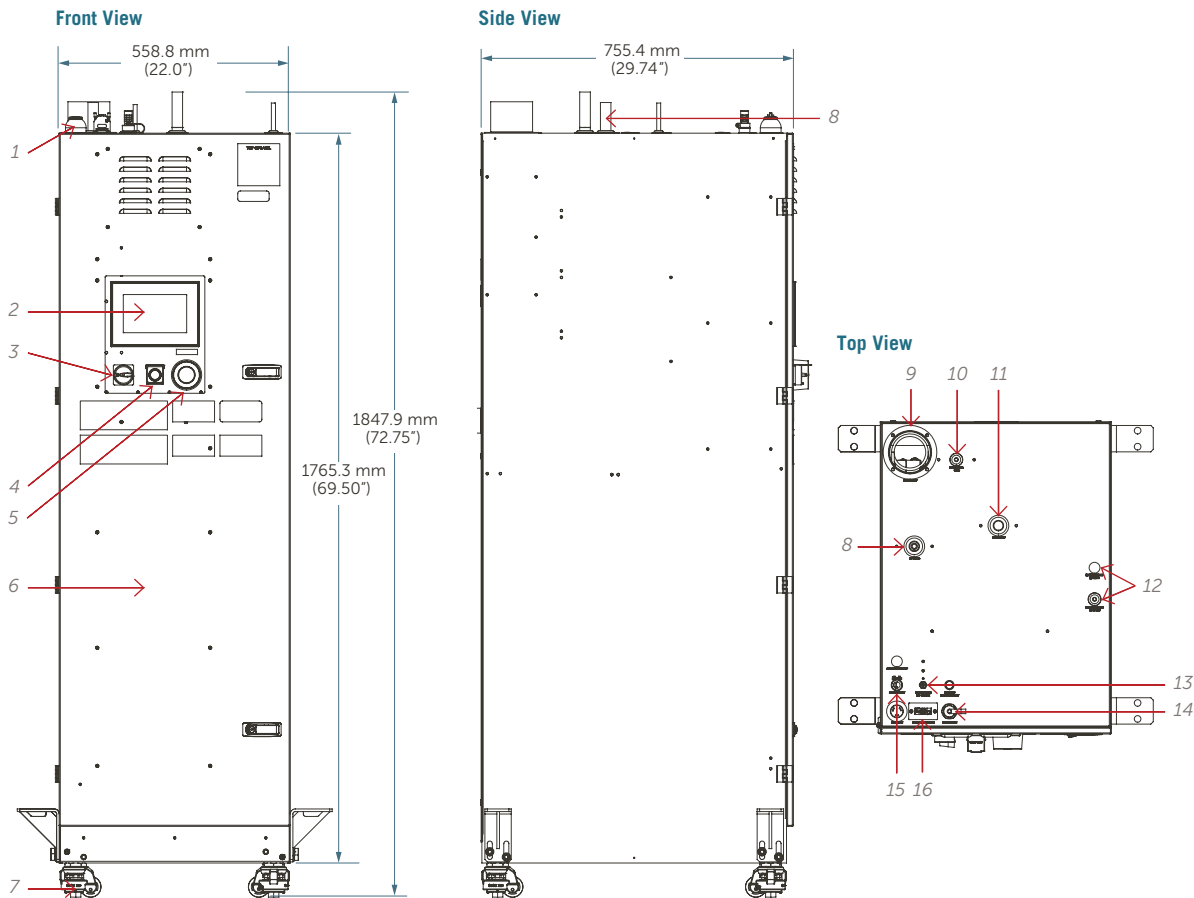
FACILITY SPECIFICATIONS

| Model | | GPS90Z2 | GPS100Z2 | GPS120Z2 |
|------------------------------|-------------------------------|--|--------------|----------|
| Process gas input | Mechanical connection | 1" tube stub | 1" tube stub | |
| | | | | |
| Process gas output | Mechanical connection | 1" tube stub | 1" tube stub | |
| | | | | |
| Ventilation | Mechanical connection | 4" duct | | |
| | Exhaust flow | 72 CFM | | |
| Power requirements | Mechanical connection | 3-pin mechanical disconnect | | |
| | Power requirements | 200–240 VAC single phase | | |
| | Power consumption | 150 W at idle and online; 1500 W for 6 hours during heating and 150 W for 3 hours during cool down | | |
| Regeneration | Regen duration | <9 hours for each purifier bed | | |
| Regen gas output | Mechanical connection | 3/8" tube stub | | |
| Instrument air | Mechanical connection | 1/4" compression fitting | | |
| | Gas and pressure | CDA or N ₂ @ 80–150 psig | | |
| Physical requirements | Mounting | Floor | | |
| | Recommended maintenance space | 3 feet in front of system | | |
| | Shipping weight | 299 kg (660 lb) | | |
| | Operating conditions | 15°–40°C indoor (60°–104°F indoor) | | |
| | Humidity | 10–90% RH noncondensing | | |

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

DIMENSIONS

Models GPS90Z2, GPS100Z2, GPS120Z2



SYSTEM FEATURES

| Features | Description | Features | Description |
|-----------------------|--|----------------------------|---|
| 1. Indicator light | Glows green, yellow, or red to provide visual indication of system status, includes audible alarm. | 8. Process gas input | Inlet gas (not purified). |
| 2. Touch screen | Provides detailed system status and information. | 9. Exhaust vent | Allows ventilation. |
| 3. Main system switch | Powers the system on and off. | 10. Regen gas vent | Exhaust regen gas. |
| 4. Start/Clear | Used to begin system operations and to clear alarms. | 11. Process gas output | Outlet gas (purified). |
| 5. EMO | When activated, power is removed from the cabinet. The system shuts down. Front panel and controller remain powered. | 12. Instrument air | Supplies gas to the air operated control valves. |
| 6. USB port | Located inside system door. | 13. Power input | System power connection. |
| 7. Casters | Casters with integrated leveling feet, includes seismic restraints. | 14. Remote alarm interface | Allows for remote alarm input and output with female 15-pin DB connector. |
| | | 15. Ethernet port | RJ-45 connector for Modbus® TCP/IP and remote browser-based web access. |

ENCLOSURE INFORMATION

The GateKeeper Z2 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 door provides easy access to all serviceable components. The backup purifier is accessible from the front door.

SYSTEM OPTIONS

Passive bypass (online bed remains online during EMO)

Passive bypass with integrated, backup GateKeeper purifier in series configuration

Automatic bypass valve

Automatic bypass valve with integrated, backup GateKeeper purifier in parallel configuration

Inlet and outlet pressure transducers

Moisture indicator

Process gas mass flowmeter with totalizer

400 V input power

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.

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