



# KINETICS GC 100

## Gas Distribution Cabinet - Manual Operation

- **Safe** — simple design, easy operation
- **Economical** — manual operation, low-cost
- **Flexible** — configurable to meet factory and manufacturing requirements

### SYSTEM OVERVIEW

The Kinetics GC 100 Manual Gas Cabinet is a low-cost, easy-to-operate gas dispensing system, designed to provide an exhausted enclosure for the safe dispensing of toxic and hazardous gases used in semiconductor and photovoltaic manufacturing. This simple gas cabinet is intended primarily for simple flammable and non-corrosive gases (e.g., O<sub>2</sub>, H<sub>2</sub>, CH<sub>4</sub>), and features an automatic gas shut-off valve in the event of a gas leak or emergency shut-off. This gas cabinet is available in single, dual, or three-cylinder configurations. For dual-cylinder configurations (both cylinders containing the same gas), cylinder switch-over occurs automatically, when the pressure of the cylinder drops to a low level. The system has a very simple electronic controller which actuates a simple indicator light when a cylinder is empty, and also shuts down the system under emergency conditions.

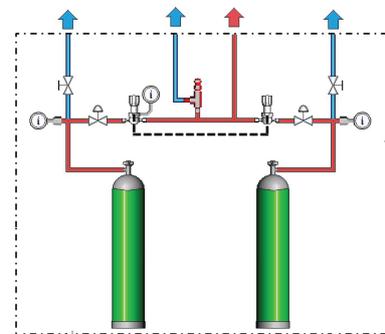
### KEY FEATURES:

- Automatic gas shut-off valve, for emergencies
- Accommodates one, two, or three gas cylinders
- Mechanical switch-over, when two cylinders are utilized
- Manual venting to exhaust line
- Modular construction, easy service access

### OPTIONS:

- Second regulator stage for variable pressure outlet (with two gas cylinders)
- Analog gauge on high-pressure side of regulator, with electrical contact to indicate empty cylinder. Connects to an external Building Automation System (one per cylinder)
- Analog gauge on high-pressure side, with signal to indicate an empty cylinder. Includes simple controller with "Cylinder Empty" light (one per cylinder)
- Purge gas connection for cylinder changes (one per cylinder)
- Cylinder scale for determining an empty cylinder for liquid gases (one per cylinder)

### PROCESS FLOW DIAGRAM



Configuration with dual-cylinder operation, automatic cylinder switch-over

### RELIABILITY<sup>1</sup>

- Availability > 99.999 %
- MTBF > 8000 Hours
- MTBA > 6000 Hours
- MTTR < 2 Hours

<sup>1</sup>Reliability figures represent typical performance.

# TECHNICAL DATA

## CONTROLS

The Kinetics GC 100 Manual Gas Cabinet features a simple PLC Controller, designed to:

- Shut down gas flow under emergency conditions
- Responds to a gas leak in the exhaust line
- Indicates when a gas cylinder is empty

## SAFETY FEATURES

All Kinetics gas cabinets comply with applicable guidelines by:

- OSHA, TGO, CE
- Uniform Fire Code (UFC80) and National Fire Protection Agency (NFPA 318)
- Semi S2-0200
- NRTL Listing

## SPECIFICATIONS

PARAMETER	CAPABILITY
Application	Distribution of some flammable and toxic process gases. Examples include: O <sub>2</sub> , N <sub>2</sub> , CF <sub>4</sub> , SF <sub>6</sub> , Ar, H <sub>2</sub> , CH <sub>4</sub>
Typical Gas Purity Levels	Total Purity ≥ 99.999999%
Process Gas Dispense Rate	≤ 3 M <sup>3</sup> /hr, with ¼" flow path
Process Gas Pressure, Max	<ul style="list-style-type: none"> <li>• Inlet: 3000 psi (205 bar)</li> <li>• Delivery: 100 psi (7 bar)<sup>1</sup></li> </ul>
Cabinet Footprint— (WxDxH)	<ul style="list-style-type: none"> <li>• Single cylinder: 16" x 24" x 81" (400mm x 600mm x 2055mm)</li> <li>• Dual cylinders: 32" x 24" x 81" (800mm x 600mm x 2055mm)</li> <li>• Three cylinders: 48" x 24" x 81" (1200mm x 600mm x 2055mm)</li> </ul>
Cabinet Materials	<ul style="list-style-type: none"> <li>• 11-gauge cold-rolled carbon steel</li> </ul>
Component Materials	<ul style="list-style-type: none"> <li>• SS Diaphragm Valves &amp; Regulator</li> <li>• Electropolished 316L SS tubing and fittings</li> </ul>
Type of Valves and Pressure Regulator	316L SS Diaphragm, Hastelloy optional

<sup>1</sup>Other outlet gas pressures are available, as options.

## FACILITY REQUIREMENTS

UTILITY	REQUIREMENT	CONNECTION TYPE
Process Gas Outlet	n/a	¼" VCR (½" VCR, optional)
Vent outlet	n/a	⅜" Tube Stub
Pneumatic Supply CDA	75 – 100 psi (5 – 7 bar)	¼" Compression
Cabinet Exhaust	<ul style="list-style-type: none"> <li>• Single cylinder: 200 SCFM @ 2" H<sub>2</sub>O (340 Nm<sup>3</sup>/hr)</li> <li>• Dual cylinders: 300 SCFM @ 2" H<sub>2</sub>O (510 Nm<sup>3</sup>/hr)</li> <li>• Three cylinders: 450 SCFM @ 2" H<sub>2</sub>O (760 Nm<sup>3</sup>/hr)</li> </ul>	6" OD Stub
Sprinkler Water	68 °C, max flow 114 slm, 2 bar	½" M-NPT
Electrical supply	110–230VAC, 50–60 HZ, Single Phase, 0.60 – 0.35 Amp	Compression, Bulkhead or Conduit