The CHEMGUARD® family of automated refill systems is based on a multi-generational history beginning with the first Schumacher semiconductor refill system in 1986. Years of experience goes into each design, ensuring delivery of ultra high-purity (UHP) liquids in a safe and cost-effective manner.

The CHEMGUARD® GEN.III MODELS CG500

DUAL-TANK CHEMICAL REFILL SYSTEM WITH PATENTED, AUTOMATIC SOLVENT PURGE

The CHEMGUARD® Gen III, CG500 is a dual-reservoir (Dual Tank Liquid Refill) system with automated solvent purge for low volatility chemicals. Dual precursor tanks allow for 100% uptime to meet the needs of today’s manufacturing fabs or in cutting edge R&D facilities.

CHEMGUARD has a reduced footprint of 457mm (18 in.) by 533 mm (21 in.), allowing for multiple cabinet placement adjacent to each other. This maximizes the use of your available floor space within the fab while reducing exhaust requirements for a lower cost of ownership. Each cabinet is fully automated and includes a microprocessor-based controller with color touch screen. The third generation controller design optimizes container change operations with automated monitoring to ensure removal of all chemical traces from pigtail connections. Standardized, modular design allows for customization, ease of maintenance and future expansion. Each CHEMGUARD model is backed with testing and years of experience to ensure reliable chemical delivery to the tool with no downtime.

CHEMGUARD Ready indicates that the CHEMGUARD family of delivery solutions has been developed in partnership with our world-class molecule development team. This ensures we provide you solutions that work for your application while protecting your processes and your people.
CHEMGUARD Automated Chemical Refill System features:

**Modular design** allows for easy customization and maintenance.

Ergonomic **touch screen** display provides operator with real-time insight in cabinet operation.

**Process chemical and Solvent Canisters** (both included)

**Patented ultrasonic technology** allows 100% bulk chemical utilization with no particle creation risk.

**Bulk chemical** (not included) and **Solvent Recover Canister** (included)

**Patented solvent purge technology** allows clean purges while maintaining chemical purity.

110% spill containment

**Small footprint** allows for reduced exhaust requirements and fab clearances.

Hundreds of molecules are approved in the CHEMGUARD for high volume manufacturing applications. A small sample is listed by model below by model.

**CHEMGUARD 500** is specifically designed for very low vapor pressure precursors. The patented, automatic solvent purge ensures molecule purity on some of the lowest vapor pressure molecules used in semiconductor manufacturing.

A small sample of the molecules approved in a CG500 are:

- TDMAT
- TDEAT
- TAETO
- TBTDET
- TDEAH
- TEMAH, TEMAHf
- TEMAZ, TEMAZr
- TPOSL

Innovative cabinet plumbing and container connections **reduce cycle purge and container change**.

**Fabwide Experience: CHEMGUARD® to process tool**

The CHEMGUARD family is more than just a standalone piece of equipment in your fab. It is designed to interface directly to most OEM process tools and can be supplemented with fabwide distribution systems designed for Ultra High Purity (UHP) liquids.
AVAILABLE OPTIONS/ACCESSORIES

- **Bulk Container Pigtails**
  - Can be modified to fit most UHP vessels. VCR fittings are standard

- **Outlet Manifolds**
  - Available with 2 Precursor outlets and 2 solvent outlets

- **Bulk Scale**
  - Included

- **Fire Suppression**
  - Independent CO₂ Fire Suppression System with Battery Back-Up available

- **Fire Detection**
  - Flammable vapor detector, and Temperature are available

- **Additional Spill Protection**
  - Additional spill protection for larger vessels or where greater than 110% is desired

- **Process Container Sizes**
  - Process canister sizes are available in 4 or 11 liters in most models

Not all options are available on all models. Please speak with your local representative for more information.

SPECIFICATIONS

- **3rd Party Certifications**
  - SEMI, UL, NRTL (MET), CE

- **Height**
  - 2209.8 mm (87 inches) - plus utility connection

- **Width**
  - 457.2 mm (18 in.)

- **Depth**
  - 533.4mm (21 in.) - back panel to EMO button

- **Weight**
  - 160 kg (350 lbs.) - approx.

- **Weight scale capacity**
  - Full scale— 45.4 kg (300 lbs)

- **Weight scale accuracy**
  - 0.1% of full scale output

- **Weight scale repeatability**
  - 0.1% of full scale output

- **Chemical outlet line**
  - 6.35mm (1/4 in.) 316L stainless male VCR—2 outlet manifold (precursor)

- **Delivery distance limit**
  - Relative to the delivery line size, typically 100 meters (300 ft.)

- **Digital inputs (0.30vDC or contacts)**
  - Digital Outputs (Dry Contacts)

- **Pressure output range**
  - ± 2 psi of setting

SIGNALS AVAILABLE (SAMPLE ONLY)

- **Life safety shutdown**
  - Life safety alarms

- **Vacuum pump interlock bulk reservoir**
  - Shutdown (major) alarm

- **Fill bulk container**
  - Fault (minor) alarm

- **Fill process container**
  - Chemical on—flow to tool

- **Tool chemical shutdown (lines 1,2)**
  - Bulk container empty

- **Vacuum request**
  - Request chemical from fabwide system

LIFE SAFETY

- **Fire detection available**
  - Pneumatic pressure low sensor

- **Door open sensor**
  - Hazardous environment controller purge low sensor

- **Vacuum liquid detection**
  - Exhaust flow low sensor

- **Spill detection**
  - Process container overfill protection

- **Flammable vapor detection**
**UTILITY REQUIREMENTS**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power requirements</td>
<td>120-240 VAC 50/60 Hz 125W</td>
</tr>
<tr>
<td>Push gas inlet</td>
<td>552-689 kPa (80-100 psig)</td>
</tr>
<tr>
<td></td>
<td>6.35mm (1/4 in.) male VCR connection</td>
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<tr>
<td></td>
<td>Ultra high-purity He or better recommended</td>
</tr>
<tr>
<td>Pneumatic gas</td>
<td>586—655 kPa (85-95 psig)</td>
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<tr>
<td></td>
<td>6.35mm (1/4 in.) push-to-connect fitting</td>
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<tr>
<td></td>
<td>N₂ or house air recommended</td>
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<tr>
<td>Purge gas</td>
<td>70-414 kPa (10-60 psig)</td>
</tr>
<tr>
<td></td>
<td>6.35mm (1/4 in.) male VCR connection</td>
</tr>
<tr>
<td></td>
<td>Semi-grade N₂ or better recommended</td>
</tr>
<tr>
<td>Process vent</td>
<td>To scrubbed house exhaust</td>
</tr>
<tr>
<td></td>
<td>6.35mm (1/4 in.) Swagelok connection</td>
</tr>
<tr>
<td>Cabinet exhaust</td>
<td>101.6mm (4 in.) diameter circular duct</td>
</tr>
<tr>
<td></td>
<td>850 liters/min (30 CFM) required</td>
</tr>
<tr>
<td>Process Vacuum</td>
<td>12.7 mm (1/2 in.) Male VCR connection, with levels determined by chemical VP:</td>
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<tr>
<td></td>
<td>&lt;15 mTorr (VP &lt;500 mTorr at 20°C) or &lt;80 mTorr (VP &gt;500 mTorr @ 20°C)</td>
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</tbody>
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**RELATED EQUIPMENT**

- Ethernet—CHEMGUARD OPC server/network software
- CGARC—Automatic Refill controller for remote fill

For more information, please contact us at:

**VERSUM MATERIALS, LLC**
VERSUMMATERIALS.COM

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