HIGH PRESSURE PURIFIER
(MODEL SG6140)

Model SG6140 purifier is designed to remove water and/or oil from gas or liquid streams. In the laboratory, it protects delicate or sensitive instruments, prolongs service life and provides more accurate, reproducible test results. This purifier may be used with noncorrosive gases compatible with brass and Viton® at pressures up to 3000 psig.

Three different purifying elements are available (see Tables I and II). These elements can be replaced without removing the purifier from the process line.

Note: Model SG6140 cannot be used as a particulate filter. For particulate filters see pages 101–104.

SPECIFICATIONS
Maximum Operating Pressure: 3000 psig
Pressure Drop:
1.0 psi at 56 slpm Air
2.4 psi at 85 slpm Air
Dew Point Obtainable
(4A and 13X Molecular Sieve): -100°F
Inlet & Outlet Connections: ¼" NPT female
Dimensions:
Height: 5 13/16"
Diameter (Widest Point): 2"
Mounting Holes (2):
¼"-20UNC x ¾" deep
Approximate Weight: 3 lbs

MATERIALS OF CONSTRUCTION
Purifier:
- Body and Cap: Brass
- O-Ring Seal: Viton®
Purifier Element:
- Housing: Electrolytic Tin-Plated Cold-Rolled Steel
- Retainer: Polyester Felt Backed by Type 316 SS Screen
- Desiccant: 4A, 13X or Activated Charcoal as Ordered

TABLE I, SG6140 Purifier

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Element Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG6140</td>
<td>None</td>
</tr>
<tr>
<td>SG6140-1</td>
<td>Type 13X Molecular Sieve</td>
</tr>
<tr>
<td>SG6140-2</td>
<td>Type 4A Molecular Sieve</td>
</tr>
<tr>
<td>SG6140-3</td>
<td>Activated Charcoal</td>
</tr>
</tbody>
</table>

Elements are shipped in individually packed, hermetically sealed cans to prevent deterioration. They must be installed before using the purifier.

TABLE II, Application

<table>
<thead>
<tr>
<th>Element Type</th>
<th>Used for Removing</th>
<th>Water Capacity at Flow Rate of 2 scfm at 80°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 13X Molecular Sieve</td>
<td>Oil and Water</td>
<td>5.5 grams</td>
</tr>
<tr>
<td>Type 4A Molecular Sieve</td>
<td>Water</td>
<td>6.0 grams</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>Oil and Heavy Hydrocarbons*</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Will remove trace amounts of Acetone in Acetylene.

OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement Element:</td>
<td></td>
</tr>
<tr>
<td>Type 13X Molecular Sieve</td>
<td>SG6141</td>
</tr>
<tr>
<td>Type 4A Molecular Sieve</td>
<td>SG6142</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>SG6143</td>
</tr>
<tr>
<td>Replacement Viton® O-Ring</td>
<td>0202-3268</td>
</tr>
</tbody>
</table>
LOW PRESSURE, HIGH FLOW PURIFIER
(MODEL AG6170)

Model AG6170 purifier protects sensitive instruments from water and/or oil contamination which ensures more accurate, reproducible test results and prolongs the instrument’s service life. This purifier (capable of removing up to 20 times more water than our Model SG6140), may be used with noncorrosive gases compatible with aluminum and neoprene at inlet pressures up to 350 psig.

Three different purifying elements are available (see Tables I and II). These elements can be replaced without removing the purifier from the process line.

Note: Model AG6170 cannot be used as a particulate filter. For particulate filters see pages 101–104, The Model AG6170 is not suitable for use with Acetylene.

SPECIFICATIONS

Maximum Operating Pressure: 350 psig
Operating Temperature Range:
-40°F to +200°F
Maximum Flow Capacity:
280 slpm for short periods (<15 mins)
85 slpm for continuous service
Pressure Drop:
0.12 psi at 85 slpm Air
1 psi at 226 slpm Air
Dew Point Obtainable
(4A and 13X M.S.): -100°F (1.5 ppm)
Inlet & Outlet Connections: ¼” NPT male

Dimensions:
Height: 15 ⅞”
Diameter: 4 ¾”
Approximate Weight: 7 lbs

MATERIALS OF CONSTRUCTION

Purifier:
Shell and Flange Plate: Aluminum
Seals: Neoprene
Strainer Assembly: Monel & Brass
Purifier Element:
Housing: Electrolytic Tin-Plated Cold-Rolled Steel
Retainer: Polyester Felt Backed by Type 316 SS Screen
Desiccant: 4A, 13X or Activated Charcoal as Ordered

TABLE I, AG6170 Purifier

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Element Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG6170</td>
<td>None</td>
</tr>
<tr>
<td>AG6170-1</td>
<td>Type 4A Molecular Sieve</td>
</tr>
<tr>
<td>AG6170-2</td>
<td>Type 13X Molecular Sieve</td>
</tr>
<tr>
<td>AG6170-3</td>
<td>Activated Charcoal</td>
</tr>
</tbody>
</table>

Elements are shipped in individually packed, hermetically sealed cans to prevent deterioration. They must be installed before using the purifier.

TABLE II, Application

<table>
<thead>
<tr>
<th>Element Type</th>
<th>Used for Removing</th>
<th>Water Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 4A Molecular Sieve</td>
<td>Water</td>
<td>134 grams</td>
</tr>
<tr>
<td>Type 13X Molecular Sieve</td>
<td>Oil and Water</td>
<td>126 grams</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>Oil and Heavy Hydrocarbons*</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Not suitable for Acetylene service.

OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement Element (includes replacement gaskets):</td>
<td></td>
</tr>
<tr>
<td>Type 4A Molecular Sieve</td>
<td>SG6171</td>
</tr>
<tr>
<td>Type 13X Molecular Sieve</td>
<td>SG6172</td>
</tr>
<tr>
<td>Activated Charcoal</td>
<td>SG6173</td>
</tr>
</tbody>
</table>
HYDROCARBON TRAP (MODEL SG6130)

The Model SG6130 Refillable Hydrocarbon Trap is designed to remove trace levels of organics from carrier gases such as Helium, Argon, Nitrogen, Hydrogen and Air. The Model SG6130 is packed with a baked coconut shell based activated carbon to effectively remove alcohols, aromatics, chlorinated hydrocarbons, ethers, hydrocarbons, ketones, mercaptans, and organic acids.

Service life of these traps will vary depending on the incoming hydrocarbon level in the carrier gas. However it is estimated that 1000 ft³ (3–4 cylinders) of carrier gas can be purified before the absorbent needs replacing.

Each trap is pre-purged and pressure tested with ultra high purity helium to insure integrity. The all metal construction eliminates potential contamination from outgassing or diffusion (a phenomena commonly associated with plastic body traps).

STANDARD FEATURES

- Sintered Type 316 Stainless Steel Inlet and Outlet Filters protect against adsorbent migration into the downstream system.
- Pre-purged and Pressure Tested with Ultra-High Purity Helium to insure integrity.

SPECIFICATIONS

Maximum Operating Pressure: 250 psig
Maximum Operating Temperature: 212°F
Maximum Flow Capacity: 35 slpm at 120 psi
Inlet and Outlet Connections: See Table I
Dimensions: 1 ½” OD x 14” long
Approximate Weight: 1 lb.

MATERIALS OF CONSTRUCTION

Body and Caps: Aluminum
Seals: Viton®
Fittings: Brass
Filters (40 micron): Type 316 Stainless Steel
Absorbent Material: Baked Coconut Shell Based Activated Carbon

TABLE I

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Inlet and Outlet Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG6130-8</td>
<td>¹⁄₈” compression</td>
</tr>
<tr>
<td>SG6130-4</td>
<td>¼” compression</td>
</tr>
</tbody>
</table>

OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorbent Refill Kit*</td>
<td>SG6135</td>
</tr>
<tr>
<td>Mounting Clip</td>
<td>MC-3</td>
</tr>
</tbody>
</table>

* Kit contains enough absorbent to refill two traps.
LOW PRESSURE MOISTURE TRAPS
(SG6180 SERIES)

These traps consist of a transparent plastic tube filled with adsorbent material. They are designed to remove oil, moisture and other contaminants from gas streams while providing a visual indication of the adsorbent’s condition. These traps are available in two refillable sizes and a choice of two adsorbents:

- **Type 5A Molecular Sieve with Indicating Drierite** for removing moisture, oil and hydrogen sulfide. When the Drierite changes from blue to pink, the material requires replacement.

- **Type 13X Molecular Sieve Mixed with Type 4A Indicating Molecular Sieve** for removing moisture and oil. When the adsorbent changes from blue to buff, the material requires replacement.

In addition, the housings may be ordered empty and filled with other types of molecular sieves. For more information on Molecular Sieves, see pages 132–138.

**WARNING:** Do not use these traps with Oxygen, hydrocarbons or solvents which attack polycarbonate.

### STANDARD FEATURES
- Transparent Plastic Tube permits quick observation of the adsorbent’s condition.
- Sintered Type 316 Stainless Steel Inlet and Outlet Filters retain the adsorbent within the column.
- All units are pressure tested with Helium.

### SPECIFICATIONS
- Maximum Operating Pressure: 125 psig at 70°F
- Maximum Operating Temperature: 110°F
- Water Capacity:
  - Model SG6180 & SG6182: 36 grams
  - Model SG6181 & SG6183: 72 grams
- Maximum Flow Capacity: 90 slpm at 125 psi inlet
- Inlet and Outlet Connections:
  - ¼” compression (standard)
  - ⅛” compression fittings available on special order
- Approximate Weight: 2 lbs

### MATERIALS OF CONSTRUCTION
- Tube: Lexan® Polycarbonate Plastic
- End Caps: Aluminum
- Seals: Viton®
- Fittings: Brass
- Filters, 40 micron:
  - Type 316 Stainless Steel
- Adsorbent Material: See Table I

### TABLE I

<table>
<thead>
<tr>
<th>Size</th>
<th>Type 5A Molecular Sieve with Indicating Drierite</th>
<th>Type 13X with 4A Indicating Molecular Sieve</th>
<th>No Adsorbent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½” OD x 13” long</td>
<td>SG6180</td>
<td>SG6182</td>
<td>SG6184</td>
</tr>
<tr>
<td>1¾” OD x 17” long</td>
<td>SG6181</td>
<td>SG6183</td>
<td>SG6185</td>
</tr>
</tbody>
</table>

### OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adsorbent Refill Kit</td>
<td>SG6186*</td>
</tr>
<tr>
<td>Type 5A with Drierite</td>
<td>SG6187**</td>
</tr>
<tr>
<td>Type 13X with 4A Indicating Molecular Sieve</td>
<td></td>
</tr>
<tr>
<td>Mounting Clip with Screws</td>
<td>MC-1</td>
</tr>
<tr>
<td>For Models SG6180, SG6182, SG6184</td>
<td></td>
</tr>
<tr>
<td>For Models SG6181, SG6183, SG6185 (2 required)</td>
<td>MC-4</td>
</tr>
<tr>
<td>Replacement O-Rings (2 required)</td>
<td>0202-3207</td>
</tr>
<tr>
<td>For Models SG6180, SG6182 and SG6184</td>
<td></td>
</tr>
<tr>
<td>For Models SG6181, SG6183 and SG6185</td>
<td>0202-3208</td>
</tr>
<tr>
<td>Fittings (2 required)</td>
<td>0202-5100</td>
</tr>
<tr>
<td>⅛” compression inlet/outlet</td>
<td></td>
</tr>
</tbody>
</table>

* Kit contains enough adsorbent to refill either two SG6180 traps or one SG6181 traps.
** Kit contains enough adsorbent to refill either two SG6182 traps or one SG6183 traps.
**GLASS ENCASED, LOW PRESSURE, HIGH PURITY MOISTURE TRAPS** (MODELS SG6190, SG6191)

These traps consist of a silanized, borosilicate glass tube which is filled with Type 13X Molecular Sieve and Type 4A Indicating Molecular Sieve. The adsorbent material removes moisture from the gas stream while the chemically-inert glass tube eliminates potential contamination from outgassing or diffusion (a phenomenon commonly associated with plastic purifiers). The Type 4A indicating sieve will undergo a color change (from blue to buff) to alert when the adsorbent requires replacement.

For operator safety, the glass housing has been encapsulated in a secondary clear plastic outer tube to provide protection from potential glass breakage while still providing a visual indication of the adsorbent’s condition. These traps are available in two different sizes, as indicated in Table I.

---

**STANDARD FEATURES**

- Borosilicate Glass Inner Housing eliminates contamination from diffusion or outgassing commonly associated with purifiers made of plastic.
- Transparent Housing permits quick observation of the adsorbent’s condition.
- Sintered Type 316 Stainless Steel Inlet and Outlet Filters retain the adsorbent within the column.
- Pre-purged and Pressure Tested with Ultra-High Purity Helium to insure integrity.

**SPECIFICATIONS**

Maximum Operating Pressure: 125 psig

Maximum Operating Temperature: 212°F

Efficiency: To <50 ppb water with inlet levels of 30 ppm or less

Water Capacity:

- Model SG6190: 11 grams
- Model SG6191: 16 grams

Maximum Flow Capacity:

32 slpm at 125 psi inlet

**Inlet and Outlet Connections:**

- ¼” compression (standard)
- Optional ¼” x ⅜” tube reducers available
- Approximate Weight: 2 lbs

**MATERIALS OF CONSTRUCTION**

- **Housing:**
  - Inner Tube: Silanized Borosilicate Glass
  - Outer Tube: Polycarbonate Plastic
- **Seals:** Zytel-A Nylon Resin
- **Fittings:** Nickel-Plated Brass
- **Filters:** 40 micron:
  - Type 316 Stainless Steel
- **Adsorbent Material:**
  - Type 13X Molecular Sieve and 4A Indicating Molecular Sieve

**TABLE I**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG6190</td>
<td>1 ¾” dia. x 10” long</td>
</tr>
<tr>
<td>SG6191</td>
<td>1 ¾” dia. x 12½” long</td>
</tr>
</tbody>
</table>

**OPTIONAL EQUIPMENT**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adsorbent Refill Kit*</td>
<td>SG6195</td>
</tr>
<tr>
<td>¼” x ⅜” Compression Tube Reducer** (2 required)</td>
<td>0202-3027</td>
</tr>
<tr>
<td>Mounting Clip with Screws (2 required)</td>
<td>MC-3</td>
</tr>
</tbody>
</table>

* Kit contains enough adsorbent to refill three (3) SG6190 traps or two (2) SG6191 traps.

** If selected, these items are not installed on the trap. They are shipped as separate items.
DISPOSABLE OXYGEN TRAPS (SG6160 SERIES)

The SG6160 Series Oxygen Traps are designed to remove trace levels of Oxygen from carrier gases such as Argon, Carbon Dioxide, Carbon Monoxide, Helium, Hydrogen, Methane or Nitrogen. These traps are also ideal for use with argon-methane mixtures (i.e. P-5 or P-10 mixtures), commonly used with gas chromatographs utilizing electron capture detectors.

These traps incorporate a highly reactive, metal reagent, which is supported on an inert substrate, coupled with molecular sieves. Oxygen is removed by chemical reaction with the reagent to form a metal oxide. Oxygen levels can be effectively reduced to less than 5 ppb when starting levels are 10 ppm or less.

Service life of these traps will vary depending on the incoming Oxygen level in the carrier gas. However, it is estimated that when the starting Oxygen level is <10 ppm, the Model SG6160 can purify four cylinders (1200 ft³) of carrier gas, while the Model SG6162 can typically purify thirty-five cylinders (10,500 ft³) or more. Actual Oxygen capacity can be found in the Specifications below. We also recommend, where the application’s flow rates permit, using these traps upstream of our SG6150 Series Indicating Oxygen Traps (page 111) to provide a visual indication of Oxygen breakthrough, thus alerting of the need to replace the trap.

Note: Oxygen Traps are not recommended as a replacement for the use of proper high purity gases. Rather, they are designed to provide additional protection from Oxygen contamination which might result from system leaks or diffusion, or to achieve further reduction in Oxygen impurity levels for extremely sensitive instrumentation or processes.

SPECIFICATIONS

Maximum Operating Pressure:
- Model SG6160: 125 psig
- Model SG6162: 250 psig

Efficiency: To <5 ppb Oxygen when inlet levels are 10 ppm or less

Oxygen Capacity:
- Model SG6160: 260 cm³ (345 mg)
- Model SG6162: 3 liters (3200 mg)

Maximum Flow Capacity:
- Model SG6160:
  - 5 slpm nitrogen at 125 psig
- Model SG6162:
  - 20 slpm nitrogen at 80 psig
  - 60 slpm nitrogen at 80 psig

Inlet and Outlet Connections: See Table I

Dimensions (diameter by length):
- SG6160: 1 1/4" x 10"
- SG6162: 2 7/8" x 18"

Approximate Weight:
- SG6160: 12 oz.
- SG6162: 3 lbs.

MATERIALS OF CONSTRUCTION

Body: Aluminum
Inlet and Outlet Fittings: Brass
Filters (40 micron):
- Type 316 Stainless Steel

TABLE I

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Inlet and Outlet Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG6160-4</td>
<td>1/4&quot; compression</td>
</tr>
<tr>
<td>SG6160-8</td>
<td>1/8&quot; compression</td>
</tr>
<tr>
<td>SG6162-2</td>
<td>1/2&quot; compression</td>
</tr>
<tr>
<td>SG6162-4</td>
<td>1/4&quot; compression</td>
</tr>
</tbody>
</table>

OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting Clip</td>
<td>MC-1</td>
</tr>
<tr>
<td>For Model SG6160</td>
<td></td>
</tr>
<tr>
<td>For Model SG6162</td>
<td></td>
</tr>
<tr>
<td>(Set of 2)</td>
<td>MC-5-2</td>
</tr>
</tbody>
</table>
GLASS ENCASED, INDICATING OXYGEN TRAPS
(MODELS SG6150, SG6151)

Models SG6150 and SG6151 Indicating Oxygen Traps are normally recommended for use downstream of non-indicating oxygen traps (where application flow rates permit) to provide a visual indication of oxygen breakthrough. Breakthrough is indicated via a color change in the adsorbent from gray to a deep brown. Because of their relatively small capacity, Indicating Oxygen Traps should be used by themselves only in low volume applications.

These traps consist of a silanized borosilicate glass tube filled with a molecular sieve base and activated getter material. Oxygen and a wide range of oxides react with the getter material to form a manganese oxide. The glass tube is enclosed in a clear plastic outer shell to provide protection from glass breakage while still allowing for a visual indication of the trap’s condition.

STANDARD FEATURES

- Transparent Glass Tube encased in a clear plastic outer shell permits quick observation of the adsorbent’s condition.
- Sintered Type 316 Stainless Steel Inlet and Outlet Filters protects against adsorbent migration into the downstream system.
- Pre-Purged and Pressure Tested with Ultra-High Purity Helium to insure integrity.
- Expended Material is Non-hazardous, Nontoxic, Nonflammable, and Non-reactive permitting safe landfill disposal.

SPECIFICATIONS

Maximum Operating Pressure: 100 psig
Maximum Operating Temperature: 212°F
Efficiency: To <1 ppb Oxygen with inlet levels of 10 ppm or less
Oxygen Capacity:
- Model SG6150: 22.5 cm³ (30 mg)
- Model SG6151: 75 cm³ (100 mg)
Maximum Flow Capacity:
- Model SG6150: 10 slpm at 100 psi
- Model SG6151: 21.5 slpm at 100 psi
Inlet and Outlet Connections: See Table I
Dimensions (diameter by length):
- SG6150: 1¼” x 9½”
- SG6151: 1¾” x 10¾”
Approximate Weight: 1 lb.

MATERIALS OF CONSTRUCTION

Housing:
- Inner Tube: Silanized Borosilicate Glass
- Outer Tube: Polycarbonate Plastic
Seals: Zytel-A Nylon Resin
Fittings: Nickel-Plated Brass
Filters (40 micron):
- Type 316 Stainless Steel

<table>
<thead>
<tr>
<th>TABLE I</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part No.</strong></td>
</tr>
<tr>
<td>SG6150-4</td>
</tr>
<tr>
<td>SG6150-8</td>
</tr>
<tr>
<td>SG6151-4</td>
</tr>
</tbody>
</table>

OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting Clip with screws</td>
<td>MC-2</td>
</tr>
<tr>
<td>For Model SG6150</td>
<td></td>
</tr>
<tr>
<td>For Model SG6151</td>
<td>MC-3</td>
</tr>
</tbody>
</table>