GLYCOL REGENERATOR and ABSORBER TOWER

Sizing and Options Form
Contact an Exterran sales representative or email PEQ.Proposals@exterran.com to submit sizing information and obtain a quote.

DIMENSIONS

Top View

Side View

Dimensions shown here are for 500 MBTU/Hr unit, are approximate, and may vary. Precise measurements for height should be confirmed prior to shipping.

General Options Checklist
- Bunker ignition/safety low (BSL) for 125-500 MBTU/Hr unit
- Solar panels to power burner safety low detector
- MODBUS card or programmable logic controller (PLC) system
- Bunker management system
- LSL/LSH connections
- Adherence to API 14C recommended practices

Regenerator Options Checklist
- Stack arrestor and down-draft diverter
- Environmental drip pan
- Pilot flame-out safety shut-down with manual reset
- Spare glycol pump and manifold for standby service
- Alternate gas or electric standby pump on 500 MBTU/Hr and smaller units
- Glycol pump shut-down
- Glycol charcoal filter on 125 and 300 MBTU/Hr (standard on larger units)
- Glycol metering
- Gas metering for sagger box
- Special paints and coatings

Absorber Options Checklist
- Additional packing or bubble cap trays
- Skid mounting
- Environmental drip pan

Standard Available Services
- Full setup service
- Glycol regeneration service
- Complete glycol unit cleaning service
- Trailer-mounted reclaiming service
- Easy field cleaning service

Absorber and Regenerator Sizing Requirements

<table>
<thead>
<tr>
<th>Gas Flow Rate (MMscfd)</th>
<th>Pressure (psig)</th>
<th>Temperature (°F)</th>
<th>Specific Gravity</th>
<th>Sour Service</th>
<th>CO₂ (vol%)</th>
<th>H₂S (ppm)</th>
<th>Outlet Water Content</th>
<th>Skid Mounted</th>
<th>Setup Assembly</th>
<th>Standard Paint</th>
<th>BTEX Option</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes / No</td>
<td>Yes / No</td>
<td>Yes / No</td>
<td>Yes / No</td>
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Key Benefits

Reliability
- Lower loss of lean glycol with greater exchange area in the glycol/gas exchanger to ensure a lower approach temperature to the top tray
- Reduction in fuel cost by using flash gas separator to capture gas to fuel reboiler
- Protection from scale, sludge, and sediment with replaceable filter elements
- Longer pump life due to better filtration and a properly sized heat exchanger

Efficiency
- Extend the life of the fire tube with lower BTU flux rate
- Reduce air emissions with BTEX option with recovery of pump gas used as fuel for the reboiler
- On larger units a more efficient combination vane/wire mesh mist extractor

Flexibility
- Better suited for ever-changing field conditions by not using heat exchanger duty in capacity rating
- Reduced diameter and weight with reduced air emissions with BTEX option
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HOW IT WORKS

Wet gas enters the integral scrubber at the bottom of the absorber tower. The gas ascends through a mist extractor where fine liquid particles are coalesced and removed. As the gas rises through the absorber tower’s packing or bubble cap trays, lean glycol (water removed through regeneration process) continually pumped to the top of the tower, is distributed and descends while absorbing the water vapor from the gas. Dry gas exits the top of the absorber and passes through the glycol/gas heat exchanger to the gas outlet.

The rich glycol (with absorbed glycol) collects in the hat tray at the bottom of the tower and flows to the power side of the glycol pump. From the pump, the rich glycol flows through the reflux coil and then to the glycol/gas heat exchanger where it is heated and passed to the flash gas separator. The flash gas separator separates gas and entrained hydrocarbons from the glycol. The gas then flows to the fuel gas scrubber and the lean glycol flows through a filter and into the reboiler.

As the reboiler drives off water vapor through the still column, the hot, reconcentrated glycol flows from the reboiler to the sagger box to remove additional water vapor. The lean glycol flows to the storage compartment and then to the glycol/gas heat exchanger for cooling. The cooled, lean glycol then flows through a glycol sock filter before passing to the glycol pump. Lean glycol and gas from the absorber together power the glycol pump, which pumps the glycol through a glycol/gas heat exchanger to minimize glycol loss and then to the absorber tower to continue the dehydration process cycle.

GLYCOL DEHYDRATION UNIT
Removes Water Vapor from Natural Gas

OVERVIEW
The Exterran Production Solutions™ Glycol Dehydration Unit is a complete water vapor removal system used on natural gas well streams to meet typical pipeline and process specifications.

Exterran’s unit provides you with reliability, efficiency and flexibility in a single package and a wide range of options to meet your needs.

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GLYCOL REGENERATOR

The glycol regenerator is an integral part of Exterran’s dehydration unit consisting mainly of a reboiler and still column. It is used to regenerate glycol by removing water vapor. Regenerator lean glycol is used to dry natural gas. Exterran manufactures a wide selection of regenerators with BTU ratings from 125,000 MBTU/Hr to 2.5 MMBTU/Hr.

Standard Features
- Designed for ethylene and triethylene glycol (EG/TEG)
- Energy-saving shell insulation with aluminum jacket
- Removable fire tube and stack
- Thermostat with thermowell
- 50-550 °F thermometer with thermowell
- High reboiler temperature fuel gas shut-off with manual reset
- Fuel gas regulator, scrubber and pressure gauges
- Flame arrester with burner and pilot assembly
- Integral insulated storage compartment
- Liquid level gauge assembly
- Glycol sock filter with initial elements
- High-pressure glycol strainer
- External glycol/glycol heat exchanger
- Pump bleeder valves
- Energy exchange glycol pump (electric on 2 MMBTU/Hr unit and larger)
- Heavy-duty welded structural steel skid with lifting lugs and pull bars
- Packed still column with reflux coil (all units larger than 125 MBTU/Hr)
- Complete piping for skid hookup, including absorber and reboiler isolating valves for units up to 500 MBTU/Hr
- Environmentally sound bent tubing and socket weld glycol piping and valves for one inch and larger pipe sizes to prevent leaking

Regenerator Specifications

<table>
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<tr>
<th>Firetube Rating (MBTU/Hr)</th>
<th>Glycol Recharge (Gallons)</th>
<th>Nominal Glycol Recirculation (Gal/Hr)</th>
<th>Reboiler Size OD (inches) x Length (feet)</th>
<th>Skid Size Width x Length (feet)</th>
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<tbody>
<tr>
<td>125</td>
<td>54</td>
<td>40</td>
<td>20 x 6</td>
<td>3 x 10</td>
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<td>103</td>
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<td>500</td>
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<td>1529</td>
<td>900</td>
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<td>2140</td>
<td>1440</td>
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<td>2500</td>
<td>2640</td>
<td>1780</td>
<td>60 x 35.25</td>
<td>12 x 40</td>
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See the Options Checklist on the last page for available options.

ABSORBER TOWER

The absorber tower is another key component of Exterran’s dehydration unit. The tower is a pressure vessel with an integral scrubber and an absorber section. The scrubber removes free liquids from the gas and the absorber section is used to contact the gas with glycol to remove remaining water vapor. Absorbers contain either bubble cap trays or stainless steel structured packing for glycol/gas contact.

Standard Features
- Glycol distributor
- 1440 psig design pressure
- Stainless steel mist extractor
- External glycol/gas heat exchanger
- 0-200 °F dial thermometer with thermowell
- Pressure gauge with isolating valve
- Pneumatic liquid level controller
- Thermal relief valve
- Drain valve
- Reflex gauge glass assembly with gauge cocks
- Lifting lugs

Trayed Absorber
- 8 bubble cap trays
- 5:1 turndown
- Diameter sizes from 16 to 72 inches

Random Packed Absorber
- 7:1 turndown
- 8 tray capacity equivalence
- Diameter sizes from 6 to 16 inches

Structured Packed Absorber
- Hotter gas handling capability
- 10:1 turndown
- 10 tray capacity equivalence
- Diameter sizes from 24 to 60 inches

See the Options Checklist on the last page for available options.