Landfill Gas Products

The First Engineered Solutions for LFG Measurement & Control
New wellheads reduce balance gas and oxygen concentrations while increasing or maintaining a steady flow of methane.

**WELLHEADS**

- **Fine Tune™ Control Valves**
  
  Linear gas flow adjustment over the entire range of valve movement, even under 10 SCFM.

- **Quick-Change™ Orifice Plates**
  
  Accessible orifice plate housing allows for quick and easy confirmation of plate size and placement.

- **QED Union Orifice Plate Wellheads**

**WELL CAPS**

- **Stabilizer™ Well Cap**
  
  Unique support ring feature stabilizes the wellhead, reducing leaks.

- **Landfill Gas Calculator**
  
  Measure the value of your increased gas flow with our innovative Landfill Gas Calculators.
The heart of every QED Wellhead, the Fine Tune™ Control Valve allows fine tuning even under 10 SCFM

QED's Precision Fine Tune™ Control Valve (U.S. Patent Number 8,800,597) is a revolutionary breakthrough in landfill gas well field tuning. Unlike traditional “gate” type valves, this allows you to easily and precisely adjust the gas flow from a well, rather than just turning the flow on or off. The valve design gives you the ability to achieve linear flow adjustment across the entire range of valve movement.

The valve also has a high visibility metered scale that allows you to observe the valve setting, and quickly and accurately return to the exact flow setting after a shutdown. The rising stem valve exposes more of the metered scale as it is opened, allowing you to see and record numerically exactly how far the valve is open.

The valve uses a “flow-tuned” design valve plug, which allows for fine tuning even at very low gas flow rates (under 10 SCFM).

The stainless steel rugged valve stem and glass-filled polypropylene handle make the valve much more durable in the harsh outdoor environment to which landfill gas wells are exposed.

### Specifications:

<table>
<thead>
<tr>
<th>Model Number:</th>
<th>CV2000M</th>
<th>CV3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow at 40&quot; w.c. vacuum:</td>
<td>200 SCFM (340 m³/h)</td>
<td>400 SCFM (680 m³/h)</td>
</tr>
<tr>
<td>Materials:</td>
<td>304 Stainless Steel, Polypropylene, Viton®</td>
<td>304 Stainless Steel, PVC, Viton®</td>
</tr>
</tbody>
</table>

Control Valves not intended for leak tight shutoff over 5 psi

<table>
<thead>
<tr>
<th>CV2000AM</th>
</tr>
</thead>
</table>
| CV2000AM Material is glass-filled polypropylene with PVC adapter to use the Fine Tune Control Valve with an existing wellhead.

**Fine Tune Control Valve Advantages:**

- Linear flow over the entire range of valve movement, including less than 10 SCFM flow.
- Position scale shows exact valve setting and open/closed at a glance.
- Heavy-duty stainless steel stem and glass-filled polypropylene handle for strength and long-term durability.

[www.qedenv.com/controlvalve](http://www.qedenv.com/controlvalve)

New QED control valve design outperforms common globe and gate valves

[Diagram showing flow rate and open turns comparison with standard gate valves and QED control valves](#)
Quick-Change™ Orifice Plate Wellhead

Revolutionary orifice plate can be viewed and changed instantly

QED’s new Quick-Change™ Orifice Plate Wellhead (U.S. Patent Number 8,800,597 & Patents Pending) combines easy plate exchanges for accurate flow measurements with precise adjustment control over a broad flow range.

The Quick-Change™ Orifice Plate (Patent Pending) feature makes it as easy as 1-2-3 for the operator to change to the most appropriate size plate for the given conditions. The accessible plate housing allows for easy confirmation of plate size and placement giving you the highest confidence in your flow reading.

Changing to the correct orifice plate can be done in seconds, and there is no time wasted shutting down the control valve or rebalancing the well field. These benefits all save valuable field time and help reduce labor costs.

The Wellhead’s control valve design allows you to finely control gas flow even at rates under 10 SCFM. This unique design will change the way operators adjust gas flow. Wells can now be tuned by flow rather than by vacuum. Well Cap is sold separately.

Quick-Change Orifice Plate Advantages:

• Saves time – plates can be changed in seconds
• Accurate flow measurements – match the right plate with the gas flow
• Reduces reporting errors – easy to identify the plate in use

ORP215MHL – horizontal configuration

www.qedenv.com/quickchange
WELLHEADS

Quick-Change™ Orifice Plate Wellhead

Prior to the installation of the Fine Tune Control Valve, Well 90 (right) was out of compliance. Oxygen concentration had increased to 6.4% and the balance gas concentration spiked at 48.4%. After installation, those concentrations have been reduced, helping maintain compliance while gently increasing methane production.

South Texas Landfill Case Study

Specifications:

<table>
<thead>
<tr>
<th>Quick-Change Orifice Plates</th>
<th>Nylon Plate Kit</th>
<th>1⅛&quot; vertical Plate Kit</th>
<th>2&quot; vertical Plate Kit</th>
<th>3&quot; vertical Plate Kit</th>
<th>2&quot; horizontal Plate Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/4&quot; (32 mm) ORP115M</td>
<td>0.40&quot; (10 mm)</td>
<td>0.26&quot; (6.6 mm)</td>
<td>0.40&quot; (10 mm)</td>
<td>0.25&quot; (19 mm)</td>
<td>0.40&quot; (10 mm)</td>
</tr>
<tr>
<td>1 1/4&quot; (32 mm) ORP115M</td>
<td>0.50&quot; (13 mm)</td>
<td>0.40&quot; (10 mm)</td>
<td>0.50&quot; (13 mm)</td>
<td>0.75&quot; (19 mm)</td>
<td>0.50&quot; (10 mm)</td>
</tr>
<tr>
<td>1 1/4&quot; (32 mm) ORP115M</td>
<td>0.75&quot; (19 mm)</td>
<td>0.75&quot; (19 mm)</td>
<td>0.75&quot; (19 mm)</td>
<td>1&quot; (25 mm)</td>
<td>1.25&quot; (31 mm)</td>
</tr>
<tr>
<td>1 1/4&quot; (32 mm) ORP115M</td>
<td>1.25&quot; (31 mm)</td>
<td>1.25&quot; (31 mm)</td>
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<td>1.40&quot; (35 mm)</td>
<td>1.40&quot; (35 mm)</td>
<td>1.40&quot; (35 mm)</td>
<td>1.25&quot; (31 mm)</td>
</tr>
</tbody>
</table>

QED’s Quick-Change Orifice Plates are constructed of fiber reinforced nylon or ⅛” stainless steel. With several sizes of orifice plate available, it is easy to select the right plate for the appropriate pressure drop allowing for accurate flow measurement readings.
QED’s new Traditional Orifice Plate Wellhead is available for both 2” and 3” pipes. The wellhead is constructed of sturdy, economical Schedule 80 PVC and QED’s Orifice Plates are constructed of \( \frac{1}{16}\)“ stainless steel. Using the most appropriate orifice plate size with minimal pressure drop is essential to generate stable flow readings with the best resolution. Using the right size plate means you will always have confidence in your flow reading and you will be sure to meet your compliance regulations.

**Specifications:**

<table>
<thead>
<tr>
<th></th>
<th>2” (50 mm)</th>
<th>3” (76 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model:</strong></td>
<td>OPU200</td>
<td>OPU300</td>
</tr>
<tr>
<td><strong>Optimal Flow Range:</strong></td>
<td>0-125 SCFM (0-212 m3/h)</td>
<td>30-300 SCFM (50-500 m3/h)</td>
</tr>
</tbody>
</table>

**Materials:** 304 Stainless Steel, PVC, Viton®

40572 2” Orifice Plate Kit – includes all 6 orifice plates for OPU200

40600 3” Orifice Plate Kit – includes 3 orifice plates for OPU300

Measure the value of your increased gas flow with our innovative Landfill Gas Calculators:

Calculate increased methane value using landfill dewatering pump systems at www.qedenv.com/landfillgas.

See the value of increased flow and methane content at www.qedenv.com/landfillgas2.

QED’s Educational Poster Series

A series of 4 educational posters are available for download online www.qedenv.com/landfills.
WELL CAPS

Look for QED’s distinctive yellow color well caps. Stabilizer™ Well Caps allow easy liquid level access and reduce wellhead leaks

QED’s innovative Stabilizer™ LFG Well Caps (US Patent number 9,068,421) feature a unique support ring molded directly into the Cap that aligns and stabilizes the LFG wellhead. This takes pressure off the flexible coupling and the flex hose and, along with watertight threads, reduces leaks from the wellhead. The caps are molded in a distinctive yellow*, which ensures you are receiving genuine QED well cap.

This is the first engineered gas well cap that allows liquid level readings without removing the wellhead – faster, safer, less system disruption. Air introduction and gas release are minimized, eliminating the need to shut down the vacuum system for level measurements and rebalancing of the well field.

Well Caps without pump fittings are a good way to start on gas recovery wells. A pump fitting kit can be added later for dual extraction wells.

Designed to work with 6” and 8” diameter wells with 2” or 3” wellheads, all models provide ports to accommodate a downwell pump. There is also an economy model for 6” gas-only wells.

Stabilizer™ LFG Well Cap Advantages:
- Support ring reduces wellhead leaks, minimizing air introduction and gas release
- Easy access for liquid level reading – faster, safer, less system disruption
- Pump fitting kits allow conversion of gas recovery caps to dual extraction

Well Caps

without fittings

<table>
<thead>
<tr>
<th>Model GWC62</th>
<th>Model GWC63</th>
<th>Model GWC82</th>
<th>Model GWC83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Diameter: 6” (152 mm)</td>
<td>Well Diameter: 6” (152 mm)</td>
<td>Well Diameter: 8” (203 mm)</td>
<td>Well Diameter: 8” (203 mm)</td>
</tr>
<tr>
<td>Gas Wellhead: 2” (50 mm) pipe</td>
<td>Gas Wellhead: 3” (76 mm) pipe</td>
<td>Gas Wellhead: 2” (50 mm) pipe</td>
<td>Gas Wellhead: 3” (76 mm) pipe</td>
</tr>
<tr>
<td>Ports: .5” (12 mm), 2 @ .75” (19 mm), 1.5” (38 mm), 1” (25 mm)</td>
<td>Ports: .5” (12 mm), 2 @ .75” (19 mm), 1.5” (38 mm), 1” (25 mm)</td>
<td>Ports: .5” (12 mm), 3 @ .75” (19 mm), 1.5” (38 mm), 1” (25 mm)</td>
<td>Ports: .5” (12 mm), 3 @ .75” (19 mm), 1.5” (38 mm)</td>
</tr>
</tbody>
</table>

Well Caps

with fittings

<table>
<thead>
<tr>
<th>Model GWC6284</th>
<th>Model GWC6384</th>
<th>Model GWC8284</th>
<th>Model GWC8384</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Diameter: 6” (152 mm)</td>
<td>Well Diameter: 6” (152 mm)</td>
<td>Well Diameter: 8” (203 mm)</td>
<td>Well Diameter: 8” (203 mm)</td>
</tr>
<tr>
<td>Gas Wellhead: 2” (50 mm) pipe</td>
<td>Gas Wellhead: 3” (76 mm) pipe</td>
<td>Gas Wellhead: 2” (50 mm) pipe</td>
<td>Gas Wellhead: 3” (76 mm) pipe</td>
</tr>
<tr>
<td>Ports: 1” (25 mm), .75” (19 mm)</td>
<td>Ports: 1” (25 mm), .75” (19 mm)</td>
<td>Ports: 2 @ .75” (19 mm)</td>
<td>Ports: 2 @ .75” (19 mm)</td>
</tr>
</tbody>
</table>

*The color yellow is a (registered) trademark of Graco Inc.
Solarguard™ Flex Hose

Reduce Your Flex Hose Cost!
UV-resistant flex hose lasts twice as long as conventional PVC hose

Solarguard™ Flex Hose from QED is made with UV-resistant flexible PVC with a rigid PVC helix. This unique formula extends the useful life of Solarguard hose over typical clear PVC landfill gas flex hose. Tests have shown that Solarguard hose maintains tensile strength and lasts twice as long as standard PVC hose.

With Solarguard hose, you’ll save on both the cost of replacement hose and the labor costs of fixing air leaks from cracked hose. QED’s Banding Kits save you even more, with a lower purchase price, longer service life, and easier installation and removal than helical hose clamps, which can be expensive, difficult to use, and tend to corrode easily. The banding coils are uniquely designed to fit Solarguard hose, and use high strength, all stainless steel clamps, which are user friendly, durable, and far less expensive.

The Solarguard™ trademarks in this publication are trademarks of Kuriyama of America, Inc.

Questions?
Do you have questions about landfill gas management?
Call us to speak with an experienced technical sales expert at:

1-800-810-9908

Email us at info@qedenv.com or visit us on the web at www.qedenv.com/landfills
For over 20 years, the AutoPump® (Patent Pending) AP4+ has been the go-to pump for landfill and remediation sites. It has proven itself #1 in reliability, long service life and the longest warranty in the industry. The new AP4+ model builds on the AutoPump reputation with a proven internal mechanism design, industry leading pumping rates, and low air consumption.

Upgraded Materials
• All nonmetallic internal parts are made of PVDF – a high-grade engineering plastic with higher strength at elevated temperatures and extremely broad chemical resistance, including to acidic and oxidizing cleaning agents sometimes used for pump maintenance.
• All stainless steel parts have been upgraded to 304-grade or higher for improved corrosion resistance.

Easy to Clean
• 3 bolts attach the pump inlet and open up the pump.
• The precision ID pump casing ensures a more controlled fit, and the smoother internal surface reduces buildup of silts and deposits inside the case.
• Easy Fittings make it a snap to remove the tubing.
• The float is now easily removed by pulling a clip.

New and Improved Warranty
• Straight 5-year warranty with no pro-rating.
• Proof of the successful history and continued improvements of the AP4+.

The AutoPump® AP4+ is the industry standard for reliability, long service life, and longest warranty.

<table>
<thead>
<tr>
<th>Fluid Inlet</th>
<th>Long AP4+</th>
<th>Short AP4+</th>
<th>LD AP4+</th>
<th>Long AP4+T</th>
<th>Short AP4+T</th>
<th>LD AP4+T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>Bottom</td>
<td>Bottom</td>
<td>Bottom</td>
<td>Top</td>
<td>Top</td>
<td>Top</td>
</tr>
<tr>
<td></td>
<td>3.6 in.</td>
<td>3.6 in.</td>
<td>3.6 in.</td>
<td>3.6 in.</td>
<td>3.6 in.</td>
<td>3.6 in.</td>
</tr>
<tr>
<td></td>
<td>(9.1 cm) OD</td>
<td>(9.1 cm) OD</td>
<td>(9.1 cm) OD</td>
<td>(9.1 cm) OD</td>
<td>(9.1 cm) OD</td>
<td>(9.1 cm) OD</td>
</tr>
<tr>
<td>Length</td>
<td>51.4 in.</td>
<td>39.3 in.</td>
<td>27.5 in.</td>
<td>56.7 in.</td>
<td>45 in.</td>
<td>30.75 in.</td>
</tr>
<tr>
<td></td>
<td>(131 cm)</td>
<td>(100 cm)</td>
<td>(70 cm)</td>
<td>(144 cm)</td>
<td>(110 cm)</td>
<td>(78 cm)</td>
</tr>
<tr>
<td>Maximum Flow</td>
<td>14 gpm</td>
<td>13 gpm</td>
<td>7 gpm</td>
<td>10 gpm</td>
<td>9 gpm</td>
<td>6.4 gpm</td>
</tr>
<tr>
<td></td>
<td>(53 Lpm)</td>
<td>(49 Lpm)</td>
<td>(26.5 Lpm)</td>
<td>(38 Lpm)</td>
<td>(34 Lpm)</td>
<td>(24 Lpm)</td>
</tr>
<tr>
<td>Maximum Depth</td>
<td>250 ft.</td>
<td>250 ft.</td>
<td>250 ft.</td>
<td>250 ft.</td>
<td>250 ft.</td>
<td>250 ft.</td>
</tr>
<tr>
<td></td>
<td>(76 m)</td>
<td>(76 m)</td>
<td>(76 m)</td>
<td>(76 m)</td>
<td>(76 m)</td>
<td>(76 m)</td>
</tr>
<tr>
<td>Actuation Level</td>
<td>38.4 in.</td>
<td>26.7 in.</td>
<td>15.3 in.</td>
<td>53.3 in.</td>
<td>41.6 in.</td>
<td>27.4 in.</td>
</tr>
<tr>
<td></td>
<td>(98 cm)</td>
<td>(68 cm)</td>
<td>(39 cm)</td>
<td>(135 cm)</td>
<td>(106 cm)</td>
<td>(70 cm)</td>
</tr>
</tbody>
</table>

AIR-POWERED LANDFILL PUMPS

Pull out the release clips.
Once the clips are removed, simply pull the connections apart.
Removing the spring clip allows for easy disassembly of the float.
Low-maintenance pump lasts up to 10 times longer between service events and requires 50% less time to clean

Field tests have shown that the New AutoPump® (Patent Pending) AP4 Ultra will last up to 10 times longer between service events. Tested in the most severe applications, the new pump ran longer and was easier to clean than a standard pump.

Several improvements contribute to this new longevity. The AP4 Ultra uses proprietary non-stick finishes on the float and discharge tube to reduce solids buildup, extending the time between cleaning and making it much faster and easier to clean the pump. All metallic parts are 316-grade Stainless Steel, which has greater corrosion resistance and can withstand attacks of the harshest leachate. This pump uses new and improved valve stem connections, no fasteners or cotter pins are required. Some models have temperature ratings up to 250 °F, making them ideal for high temperature applications.

“Cleaning has been an easy task, most times just requiring a water spray,” said one user. From another, “We removed residue with some clean water and a swipe of the hand.”

The Ultra builds upon the established AutoPump system, which has been the industry leader for over 30 years, and includes QED’s unmatched customer service.

Like to try one?
Call (800) 624-2026
or visit www.qedenv.com/ultra