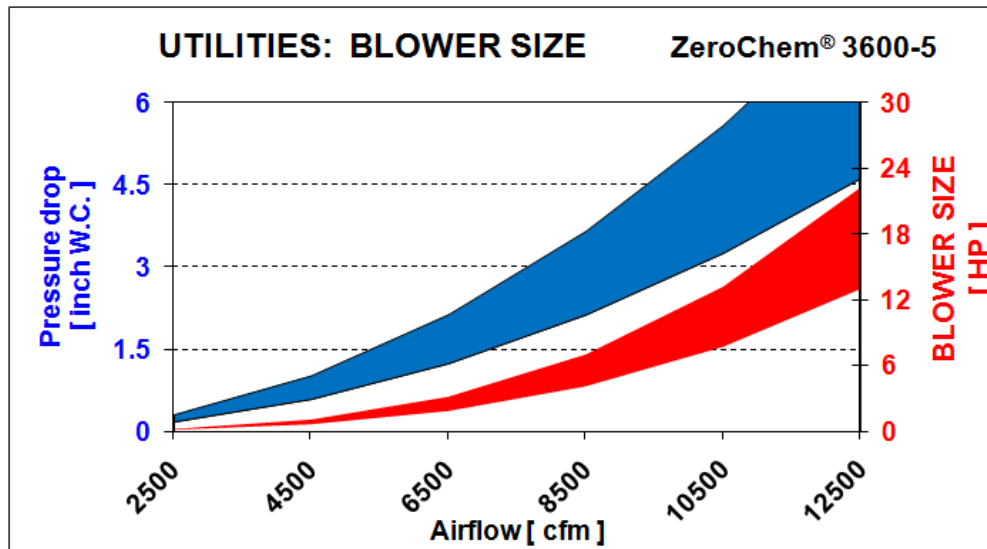


## Technical Specification Sheet

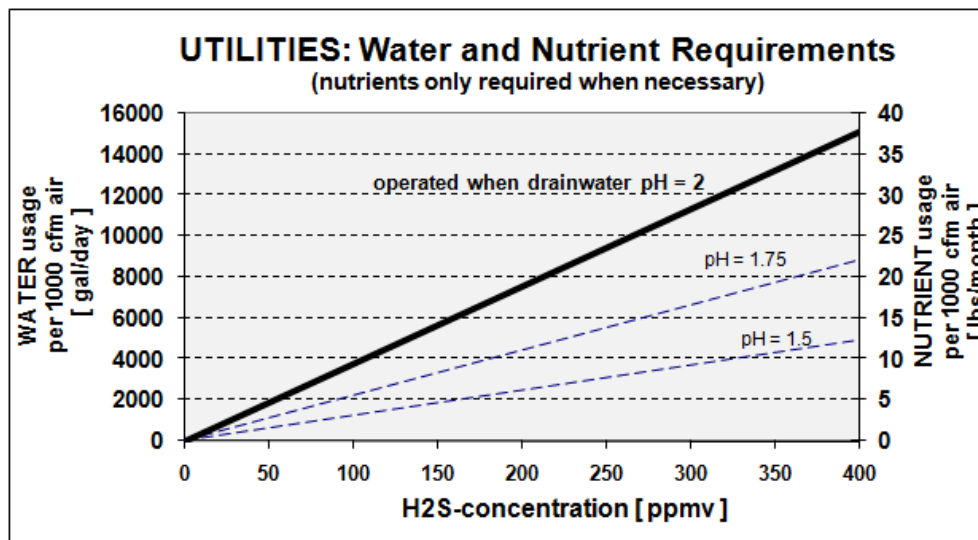
## summary

## ZeroChem® 3600-5

	Bioreactor Vessel	Water Panel	Electrical Controller	Recirc Drain
Dimensions :	307"H x Ø11' 9 ¼"	40"H x 32"W x 16"D	12"H x 12"W x 6"D	2'-4 ¼"L x 3'-1 ¼"H x 1¼' W
Footprint :	140 ft <sup>2</sup>	N/A	N/A	N/A
Weight :	16702 lbs (transport) 61110 lbs (max. operational)	188 lbs	1 lbs	45 lbs
Materials :	Fiber Reinforced Plastic with internal corrosion protecting liner and external UV protecting coating	Stainless Steel (cabinet) PVC (internal water piping)	ABS	PVC
Air pressure range :	- 8" W.C. till + 8" W.C.	N/A	N/A	- 8" W.C. till + 8" W.C.
Water pressure range :	N/A	60 - 75 PSI water source <sup>1</sup>	N/A	- 8" W.C. till + 8" W.C.
Additional information :	<p><b>Color:</b> RAL 7032 (pebble grey)</p> <p><b>Corrosion protection:</b> Premium vinyl ester resin (ie: Corve 8301 or Heron 922 and blue pigment).</p> <p><b>External Topcoat:</b> C-glass or synthetic veil with pigmented, isophalic resin and UV filter.</p> <p><b>Design Life:</b> 50 Years</p> <p><b>Wind load:</b> max. 140 mph</p> <p><b>Seismic zone:</b> 4</p> <p><b>Foundation design:</b> This standard is not part of the scope of supply. As guidance, the pad typically is a minimum of eighteen inch (18") &gt; reactor (Ø) to allow for anchors.</p> <p><b>Provided with:</b> Air Inlet Transition with a 30" diameter flange for ductwork connections. Includes one (1) one-inch coupling for inlet air sampling or measurements.</p>	<p><b>Mounting:</b> The Water Panel should be mounted three (3) feet from the reactor in Class 1, Division 2 area. A pedestal can be provided for mounting as Optional Accessory.</p> <p><b>Water Connections:</b> ANSI 2" flanged inlet water connection to either potable or plant effluent water. <b>Note:</b> A junction box is included for all electrical connections to the Electrical Controller.</p> <p><b>Provided with:</b> <b>Nutrient Dosing System</b> including pump and tank. <b>Panel Heater</b>, 120VAC self-regulating unit.</p> <p><sup>1</sup> Water pressure must remain constant, meaning fluctuating less than + / - 3 PSI.</p>	<p><b>Mounting:</b> This process control box to be mounted into an electrical panel. It comes with a HMI (4.5" x 3.4") to be mounted in electrical panel.</p> <p><b>Power connection:</b> 85-264 VAC; 47-63 Hz; 0.9A@100VAC, 0.6A@200VAC.</p> <p><b>Inlets/Outlets:</b> 24VDC inputs to connect with the junction box of the Water Panel. Potential free relay outputs to connect with the Water Panel and alarm notifications. Alarm outputs: System Running, System Failure. Labeled terminals for external wiring.</p> <p><b>Human Machine Interface (HMI):</b> To view control program settings, system alarms, system status and system data.</p> <p><b>Provided with:</b> Two communication ports (RS232C with Modbus RTU).</p>	<p><b>General:</b> This water lock connects to the bioreactor drain and prevents untreated air from bypassing the reactor and serves as a pH sampling location.</p> <p><b>Position on Bioreactor:</b> The drain is located clockwise at 45° from the Air Inlet position (0°).</p> <p><b>Provided with:</b> Connections to hook-up the temporary recirculation pump during the start-up to speed-up microbial growth and reduce the duration of the start-up period.</p>



Note: Pressure losses over bioreactor only.



Note: Design bioreactor for standard operation at pH = 2.

UTILITIES: WATER QUALITY	
Quality	Potable water or effluent water from a wastewater treatment facility*
pH	6.0 - 8.0
Min./Max. temperature	10 - 35°C
<b>No nutrients are required if:</b>	
<i>* the effluent water complies with the following standards:</i>	
1. Required quality as originates from an (secondary) aerobic municipal waste water treatment plant; no toxics are present.	
2. COD < 100 mg O <sub>2</sub> /L	
3. BOD < 30 mg O <sub>2</sub> /L	
4. N <sub>tot</sub> = 2-20 mg N/L	
5. P <sub>tot</sub> = 1-5 mg P/L	
6. Chlorine < 5 ppm (total Chlorine; e.g. Cl <sub>2</sub> , OCl <sup>-</sup> )	
7. TSS** < 20 mg/L (if higher a self-cleaning filter might be possible to use)	
8. Salts < 2,000 ppm (e.g. NaCl, KCl)	
9. Hardness < 400 mg CaCO <sub>3</sub> ( when system operating at pH=2)	
<i>Note:</i>	
in case the secondary effluent water deviates from the above requirements, an analysis is necessary and possibly requires specific tailor-made nutrient dosing.	
**Total Suspended Solids	