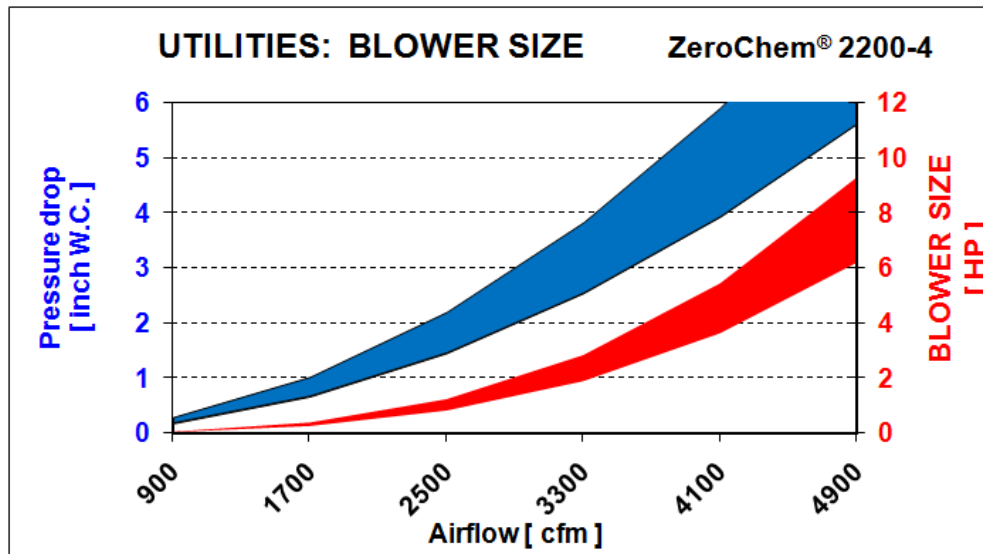


Technical Specification Sheet

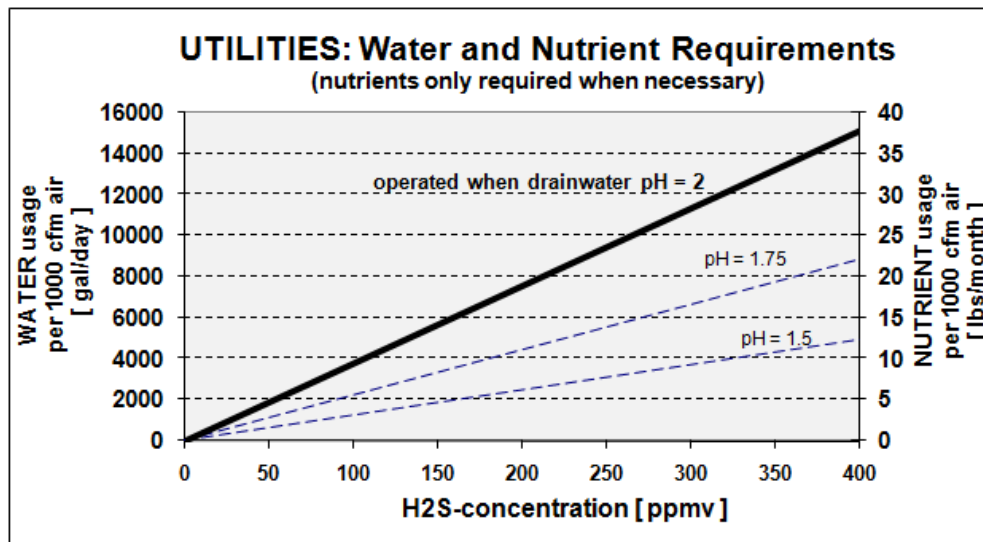
summary

ZeroChem® 2200-4

	Bioreactor Vessel	Water Panel	Electrical Controller	Recirc Drain
Dimensions :	246"H x Ø 94"	32"H x 32"W x 12"D	12"H x 12"W x 6"D	2'-4 1/4"L x 3'-1 1/4"H x 1 1/4" W
Footprint :	55 ft ²	N/A	N/A	N/A
Weight :	5097 lbs (transport) 19247 lbs (max. operational)	97 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 ¹	N/A	- 8" W.C. till + 8" W.C.
Additional information :	<p>Color: RAL 7032 (pebble grey)</p> <p>Corrosion protection: Premium vinyl ester resin (ie: Corve 8301 or Heron 922 and blue pigment).</p> <p>External Topcoat: C-glass or synthetic veil with pigmented, isophalic resin and UV filter.</p> <p>Design Life: 50 Years</p> <p>Wind load: max. 140 mph</p> <p>Seismic zone: 4</p> <p>Foundation design: This standard is not part of the scope of supply. As guidance, the pad typically is a minimum of eighteen inch (18") > reactor (Ø) to allow for anchors.</p> <p>Provided with: Air Inlet Transition with a 18" diameter flange for ductwork connections. Includes one (1) one-inch coupling for inlet air sampling or measurements.</p>	<p>Mounting: The 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>Water Connections: ANSI 2" flanged inlet water connection to either potable or plant effluent water. Note: A junction box is included for all electrical connections to the Electrical Control.</p> <p>Provided with: Nutrient Dosing System including pump and tank. Panel Heater, 120VAC self-regulating unit.</p> <p>¹ Water pressure must remain constant, meaning fluctuating less than +/- 3 PSI.</p>	<p>Mounting: 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>Power connection: 85-264 VAC; 47-63 Hz; 0.9A@100VAC, 0.6A@200VAC.</p> <p>Inlets/Outlets: 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>Human Machine Interface (HMI): To view control program settings, system alarms, system status and system data.</p> <p>Provided with: Two communication ports (RS232C with Modbus RTU).</p>	<p>General: 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>Position on Bioreactor: The drain is located clockwise at 45° from the Air Inlet position (0°).</p> <p>Provided with: 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
No nutrients are required if:	
<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 ₂ /L	
3. BOD < 30 mg O ₂ /L	
4. N _{tot} = 2-20 mg N/L	
5. P _{tot} = 1-5 mg P/L	
6. Chlorine < 5 ppm (total Chlorine; e.g. Cl ₂ , OCl ⁻)	
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 ₃ (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	