



STATEMENT OF QUALIFICATIONS

CORPORATE OVERVIEW

ECS (Engineered Composite Systems) has over 100 years of combined experience in the design and manufacturing of Air Pollution Control Systems, process vessels and accessories with installations all over North America. ECS sets itself apart from other odor control companies by providing a complete system – from source to solution. Sales, design, project management, manufacturing and inventory items are located together in our 100,000-square-foot facility in Central Texas.

In this one location resides sales, manufacturing, engineering, product development, project management and service operations. This seamless approach to business allows us to translate customer needs directly into customer solutions.

- Computerized helical tank winder produces tanks from 12” up to 14’ in diameter in up to 40’ lengths.
- Two custom-designed dual-stage pipe / duct winders windpipe from 2” up to 84” in diameter in up to 48’ lengths.
- Four modern chopper stations are used for manufacturing large, complex parts.
- Other manufacturing accessories on hand for custom production are duct and tank mandrels from 2” to 72” in diameter, sweep elbow tooling from 2” up to 72” in diameter, a 20-ton rough terrain yard-crane and four sets of 5-ton bridge cranes.
- Five vacuum infusion stations operate to further increase production flexibility.
- A 5’ x 10’ computerized CNC station with 18” of Z axis allows for extreme efficiency and precision in tooling smaller parts. Increased efficiency and innovative production practices give ECS the ability to offer high quality products with short lead times and competitive prices.



Quality is a hallmark of the ECS manufacturing cycle with a well-established Quality Assurance program. In addition, all systems undergo a detailed hydraulic and electrical function test prior to shipment. High standards of quality are maintained by documented and thorough inspection procedures for critically purchased components such as FRP vessels and electrical control components, as well as for all machined parts. Systems are carefully assembled and thoroughly tested for up to 24 hours. Overall quality control is the responsibility of the Manufacturing Manager.

Customer Service

ECS has a project management team to assist owners and contractors during system commissioning. ECS project managers participate in engineering and design with a hands-on understanding of the nuances of the manufacturing process. This facilitates the production of real equipment from the imagined. ECS' service capability far exceeds the minimum requirement of industry standards and customer expectations.

Engineering

ECS process engineering group provides practical expertise for designing and installing treatment systems. The process engineering group becomes involved at the design test stage and follows a given project through process specification, materials selection, process control, quality control testing and installation. Individual responsibility is the key to ensuring project congruence and high quality.

ECS' product engineering group includes electrical and mechanical engineering personnel as well as mechanical and electrical CAD and Solid Works designers. This group has many years of experience in designing and building odor control systems.

Project Management

Once a contract has been awarded to ECS, the point of contact is transferred from the responsibility of the sales representative to the Project Manager and Submittal Engineer. They work with the customer's representative to ensure that all the contract requirements are satisfied in a timely and effective manner. This effort includes the issue of drawings, coordinating drawings approval with the owner's representative, issuing Operating and Maintenance manuals, and coordinating ECS' training of the owner's operation and maintenance personnel as well as technical supervision during the commissioning of the odor control system.

Research and Development

ECS is continually working on new and improved ways of treating odorous compounds. Radial flow carbon adsorption for reduced footprint and fan horsepower along with new synthetic biological filter media for longer filter media life are only a couple of new processes that ECS will bring to the



marketplace to help improve the efficiency of odor control. ECS currently has several patent pending applications that would lead to great advancements in odor control technologies.

Continuing projects for ECS R&D personnel include extending the application of biological treatment through the development of innovative processes, improving the commercial application and competitiveness of existing processes and researching areas of new application.

ECS Contact Information

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PRODUCT SUMMARY

What sets ECS apart from other manufacturers is flexibility and specialization in equipment for corrosive applications. Where other companies focus much of their resources on inexpensive, commodity tanks, the focus of ECS has been critical service applications.

- V-Series Deep Bed Carbon Adsorbers – The V1 is a low cost, highly effective system for removing H₂S and other compounds from municipal wastewater applications. These systems can utilize a wide variety of adsorbent media. ECS carbon systems provide reliable performance, low installation costs and require little to no maintenance under normal operation conditions.
- VX Radial Flow Carbon System – The VX radial flow is an efficient, highly effective system for removing H₂S and other compounds from municipal wastewater applications. These systems can utilize a wide variety of adsorbent media for specific treatment needs with lower capital and operating cost than Deep Bed or Up-Flow Systems all, with a small footprint and low pressure drop requiring lower horsepower blowers.
- H-Series Carbon Adsorber – The H-Series is a highly effective system for removing H₂S and other compounds from municipal wastewater applications. These systems can utilize a wide variety of adsorbent media. As with all ECS activated carbon systems, the H-Series provides advanced air distribution, low installation cost and is virtually maintenance free once in operation.
- X-Pac Chemical Scrubbers – ECS packed tower wet scrubber systems can handle very large air volumes – up to 70,000 CFM. ECS packed towers feature an external extended sump reducing overall height and allowing for the use of low maintenance. The X-Pac is a reliable system with a proven track record supported by years of operational experience controlling hydrogen sulfide and organic odors from wastewater treatment operations.
- Biological Systems – ECS offers a full line of biological odor control systems to control H₂S and reduced sulfur compounds. ECS BioPac towers are designed to remove 99% H₂S and can be fitted with a neutral PH stage to facilitate treatment of organic compounds. Bio-Pure is an engineered media designed to replace conventional wood chips. Bio-Pure does not require nutrient feed and is over twice as efficient as wood chips. The ECS Duo is a combination biological system that utilizes BioPac and Bio-Pure technology to offer a conservative, full-proof approach to total odor removal
- Pre-Filter – FRP housing with stainless steel, polypropylene mesh pads or Noryl blades. Units have access doors, drains, and in-place wash systems.
- Chemical Storage Tanks – ECS FRP Chemical Storage Tanks are up to 168” in diameter and designed to meet virtually every storage requirement. Built with exterior coatings with UV inhibitors, ECS tanks are manufactured to national standards including ASTM D3299, 4097, PS 15069, SPI’s Quality Assurance Report and ASME RTP-1. Customer configurations include



square and rectangular shapes with a full range of accessories including ladders, platforms, handrails, sight gauges and level instrumentation. High-quality corrosion liners with specialized curing systems are added for extreme service conditions.

- Class 1 Flame Resistant Ductwork – ECS is one of the largest suppliers in North America of ductwork and fittings for the conveyance of corrosive gas. ECS duct is built with a standard 100-mil resin-rich corrosion barrier on all surfaces exposed to corrosive gas. Transitions, fittings and custom fabrications meet each customer’s specific requirement and are available in 2” through 144” diameters. Systems are shop-fabricated to minimize field work with static grounding systems for explosive atmospheres.
- Dampers– ECS has been involved in the design and manufacture of high-quality FRP Dampers for over 15 years. We are the only supplier with a complete product line and unmatched quality. Materials used to manufacture the body, and components match the corresponding ductwork system. Housings are sized to match ECS ductwork as well as customer or other special equipment such as inlet boxes, fans and flexible connectors. Custom configurations are available such as: square / rectangle and non-standard lengths and flange dimensions. Components are selected to meet customer requirements from shaft and gasket material to operators. ECS dampers are licensed to bear the AMCA seal.

Complete product offering includes:

- ♦ Inlet Vane (Vortex)
 - ♦ Parallel Blade
 - ♦ Opposed Blade
 - ♦ Back-Draft
 - ♦ Volume Control Isolation
 - ♦ Bubble-Tight Shut-Off Operation
- Stacks – Supported and free-standing FRP stacks are built up to 100’ in length.
 - Covers / Hoods – Cover and hood systems are manufactured out of corrosion resistant fiberglass to contain and convey odorous air and corrosive gas.
 - Enclosures – 100% Composite sound enclosures reduce noise pollution from fans and other such equipment. ECS Enclosures are corrosion-resistant and weather-proof for pump skids or electronic applications. All enclosures, standard or sound, are available with a host of options including exhaust fans, lights and electrical components.



ENGINEERING FIRMS PARTNERED WITH ECS FOR SYSTEM SUPPLY:

AECOM

Applied Resource Engineering, LLC

Arcadis

Black & Veatch

Blasland, Bouck & Lee, Inc.

Brown & Caldwell

Carollo Engineers

CDM Smith, Inc.

Donohue & Associates, Inc.

EarthTech Engineering

Hazen and Sawyer

HDR, Inc.

HR Green, Inc.

Jacobs Engineering

Kimley-Horn and Associates, Inc.

Perkins Engineering Consultants, Inc.

Raytheon Technologies

RK&K Engineering, LLP

Stanley Consultants

Stantec Consulting, Ltd

Tetra Tech / KCM, Inc.

Tighe & Bond

TYLin (formerly Greeley and Hansen)

V&A Consulting Engineers, Inc.

Valentine Environmental Engineers, LLC

Webster Environmental Associates, Inc.

Woodard & Curran

Wright-Pierce