

SD Equipment Solutions

Scientific Design is a world leader in the development and licensing of proprietary processes for the production of ethylene oxide and glycol (EO/EG), ethylene oxide derivatives, polyols and maleic anhydride. In addition to process licenses and catalysts, SD offers world class proprietary and nonproprietary equipment for use in its processes and similar processes. With over 350 patents, and significant investment into Research and Development, SD continues to innovate and provide solutions as a technology based company.



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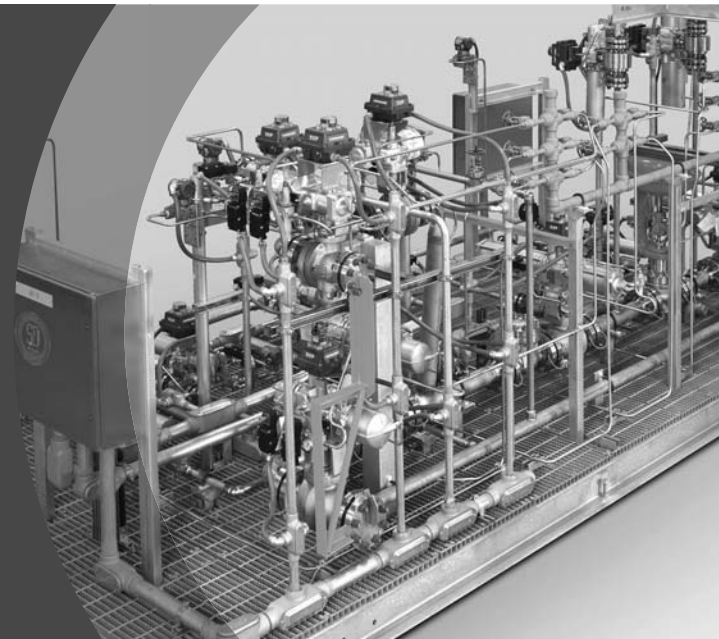


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Oxygen Mixing Solutions



UNRIVALED EXPERIENCE

Over 100 EO / EG Plants
delivered into the
Petrochemical Industry



Scientific Design Company, Inc.

Getting the Right Results

Critical Application

Scientific Design's (SD) 70+ years of process experience provide an industry proven solution to mixing flammable gases. Oxygen injected into a gaseous hydrocarbon stream produces a concentration that traverses a flammable region before final homogeneity. SD's specially designed mixing sparger ensures safe, rapid blending. A sophisticated, highly redundant Safety Integrity System (SIS) with custom hardware and precise sensing points will shut off oxygen feed and safely purge the equipment in the event of an unsafe condition.

SD process knowledge and experience ensures correct design decisions

Schedule Advantage

Scientific Design's ability to execute Basic Engineering and Detailed Design in parallel and to fabricate in a qualified shop under optimum working conditions enables fast-track delivery, quality assurance and compliance with specifications. SD Equipment is designed, fabricated and shop tested which reduces site labor constraints, installation time and reduces startup complications all which can impact project schedule.

First Class Quality

Scientific Design's equipment projects follow a detailed Quality Plan which guarantees productivity, safety, and quality. SD uses rigorously qualified vendors to guarantee superior quality products, delivered on time to ensure seamless equipment assembly. All equipment and fabrication is inspected and quality checked by SD experts who are intimately familiar with both process and mechanical requirements of the design and operation of the product.

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Capital Cost Savings

Scientific Design's approach to design and fabrication is a proven cost effective method which increases plant reliability. Working with SD from the Basic Engineering phase through commissioning ensures that you have a single entity that maintains focus on the project's most important aspects:

- Cost effective investment
- Timely project completion
- Built to licensors design specifications
- Meets process guarantees



Process Design Package Plus (PDP+)

Detailed Engineering

Equipment Fabrication

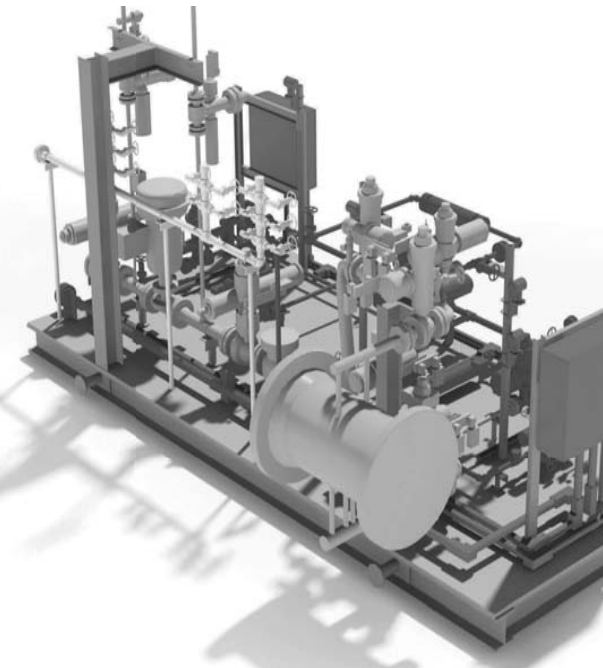
Construction

Installation

Featured Equipment

OMS Control Skid

Scientific Design's design for the oxygen feed system uses a triple block, double bleed, and triple block, double pressurized system to provide guaranteed separation of the oxygen feed from the hydrocarbon rich cycle gas when a shutdown is required. The system is designed to perform a complete purge and diagnostic checkout each time the system is started while no operating personnel are required in the feed system area. The OMS Control Skid contains oxygen, nitrogen, and instrument air headers, related valves, and instruments, wired to junction boxes at the skid edge. SD will provide basic and detailed engineering design, procurement of materials and equipment, fabrication, cleaning and testing of the OMS Control Skid and Equipment.



Safety Logic Solver

Scientific Design's "Fail-safe" Safety Interlock System (SIS) for the OMS ensures the highest level of integrity and availability by providing the correct hardware and system implementation. SD supervises the Factory Acceptance Test in the sub-contractor's shop. All PLC interlocks are shop tested to reduce OMS field commissioning time. SD involvement from start to finish ensures correct implementation of all control logic and a consistent safety philosophy.

OMS Sparger

The OMS Sparger is SD's Proprietary technology for the safe and effective mixing of oxygen with hydrocarbons for the Ethylene Oxide process. The design is customized for your process based on Computational Fluid Dynamics Modeling, Finite Element Analysis and detailed mechanical analysis. SD has developed a detailed inspection and test plan with black light check after chemical cleaning. SD will manage and monitor the engineering and fabrication of the OMS at every step of the process including design, drawing review and fabrication shop visits.

50+
years of oxygen
mixing experience

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