



ENGINEERS • FABRICATORS • CONSTRUCTORS

CONTAINER MANUFACTURING



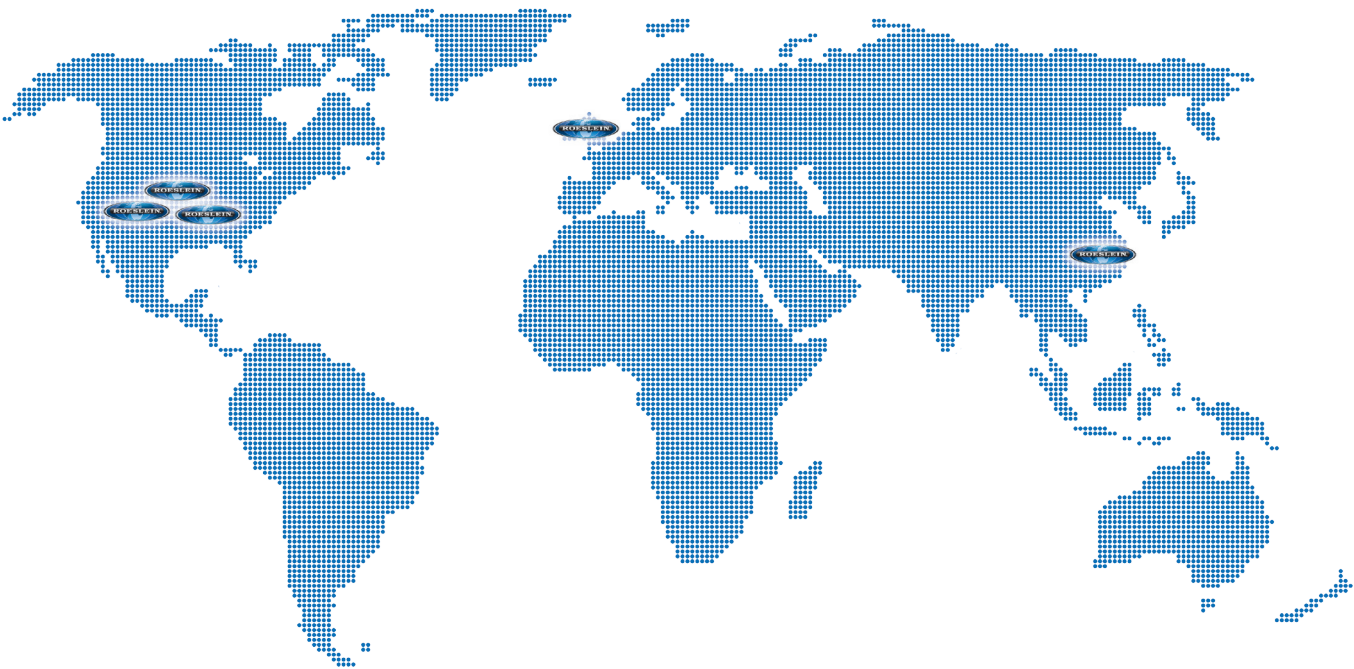
COMPANY OVERVIEW

Roeslein & Associates, Inc., headquartered in Saint Louis, Missouri, USA, provides a wide range of technical services and engineered products to various process industries. Since Roeslein first introduced its specialized approach - Modularization, Unitization & Preassembly - it has remained at the forefront of the latest advances in modularized approaches to large capital projects for specialized facilities. Roeslein has implemented many new types of capital projects, including greenfield plants, plant modifications, plant upgrades and plant expansions. Roeslein also provides technical support for the ongoing operations of existing facilities through training, technical audits and long-term technology and operations support contracts. Its core market is primarily in beverage container manufacturing, PET plastic bottle manufacturing, and beverage filling and packaging plants. Roeslein's Process and Energy group has branched into the arenas of oil & gas, refinery, petrochemical, chemical, power generation and other general process markets.

Firmly establishing itself over its successful history, Roeslein has steadily grown in size with offices in the United States, United Kingdom and China. Roeslein differentiates itself from traditional Engineering and Construction firms by providing unique approaches to project implementation, by strongly emphasizing the execution of its design, and by focusing on just a few manufacturing processes so as to completely understand and support the technology of its customers' operations. Regardless of the role Roeslein plays in a client's project, all efforts are driven by the successful start-up and ongoing operation of the client's facility.

Since their inception in 1990, Roeslein & Associates has successfully completed projects of varying scopes worldwide. These projects include D&I can lines and process and energy modular systems on more than six continents. Services provided in these facilities range from Operational Support to Total Systems Integration.

Roeslein would welcome the opportunity to discuss with you in detail how our group of experts can help your company with its existing operation or the implementation of a new greenfield facility.



ENGINEERING SERVICES

Engineering has always been a major strength of the company. The engineering disciplines provided by Roeslein are mechanical, electrical, instrumentation & controls and structural. Roeslein has professional engineers on its staff that are registered in many states throughout the U.S. and has also developed strategic alliances with outside engineering firms and contract engineers to provide even more breadth of service. In addition to our engineering capabilities in our Saint Louis office, we also perform engineering services in Denver, Colorado and our Shanghai, China offices.

Roeslein's concept-to-completion philosophy means that its engineers and design documents are generated with both construction and plant operations and maintenance in mind. Roeslein Engineers typically follow the project through construction bidding to the actual construction and start-up, minimizing conflict that traditionally exists between engineering and construction contractors.

Estimating

- Bill of Materials generation for all disciplines
- Feasibility & marketing studies
- Pricing for all disciplines

Project Management

- Project Management, design through installation and commissioning
- Scheduling management of all disciplines
- Reporting, Health & Safety

3D Modeling

- AutoCad Plant 3D or Bentley v8i
- All disciplines

Process

- Conceptual Engineering Design
- Detailed Engineering Deliverables

Mechanical

- P&ID development
- Equipment Specifications
- Hydraulic Calculations using Pipeflo+
- Project Lists
 - Equipment, Pipeline schedule, etc
- Insulation design

Piping

- Piping Specification (Client's or our own)
- All piping materials
 - (CS, SS, Alloy, Fiberglass, HDPE, etc)
- Detailed piping isometrics for fabrication
- GA's, Plans & Elevations, etc.

Structural

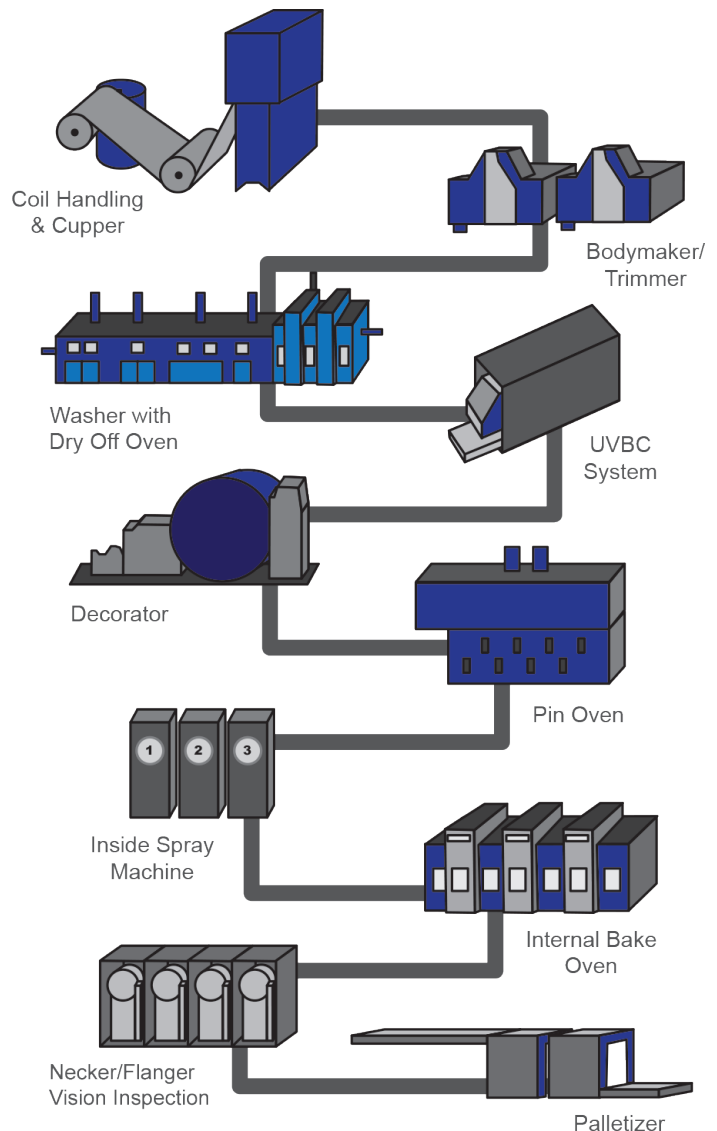
- Professional Engineering stamping
- Structural analysis utilizing Revit
- GA's, Plans & Elevations, Details, etc.
- Foundation loading diagrams
- Lifting plans

Electrical

- Electrical design, conduit, wiring, JB's
- Heat trace design
- Panel Design

Instrumentation

- Control Valve & Instrument Specifications
- Control Panel Design
- PLC Design & Programming



MODULAR FABRICATION

Roeslein Modular Fabrication Capabilities (U.S. Facility)

Size

375,000 square feet under roof
Located on 23 acre parcel
160 craftsmen

Structural Fabrication Area: 43,000 sq. ft.

Two 15-Ton cranes
42' hook height
25' x 200' Bay with Two 2-Ton Overhead Cranes
50' x 200' Bay with Two 5-Ton Overhead Cranes
Five 25' x 200' Bays with 1-Ton Jib Cranes
25' x 200' Bay with 1-Ton Overhead Crane
3 Material Saws
AWS Welding
Piranha Bender

Carbon Steel Pipe Area: 44,800 sq. ft.

1/2" – 36" size capability
Two 25' x 200' Bays with 1-Ton Jib Cranes
Two 25' x 200' Bays with Jib Cranes
Two 36" Diameter Pipe Turners
Small Diameter Pipe Turners

Stainless & Alloy Pipe Fabrication Area: 6,200 sq. ft.

Two separate and segregated areas for alloy and stainless fabrication
Rooms under positive pressure filtration
Dedicated 22" Marvel Stainless Steel Saw
Walters Sufox SS cleaning machine
Small diameter pipe turners (1-20")

Electrical & Instrumentation: 6,000 sq. ft.

Roeslein follows NEC and UL for electrical design and assembly.
Cable tray & conduit installs, panel builds, PLC Programming/Installation, machine wiring, lighting systems
CE certification for European Union.
P&ID's development or implementation
Design, procure and install heat tracing

Finishing: 35,500 sq. ft.

One 32 x 65' Spray Booths
18 x 34' Spray Booth
18 x 64' spray booth
HVLSP Spray Equipment
Multiple Swing-Sets/Product Movers
Chemical Clean/Wash Bay

Module Preassembly Area A: 81,000 sq. ft.

Module Preassembly Area C: 38,600 sq. ft.

65' x 270' Bays
34' Hook Height
Three 20-Ton Overhead Cranes
Two 23' High Bays

Module Preassembly Area D: 17,250 sq. ft.

Module Preassembly Area E: 38,800 sq. ft.

75' x 270' Bays
42' Hook Height
Two 30-Ton Overhead Cranes

Conveyance Assembly: 11,500 sq. ft.

Shipping & Receiving Department: 13,400 sq. ft.

12 Shipping Docks
Tag all Inbound Components for Projects
Barcode all Project Components for Shipping
Mississippi River barge access within 6.2 miles

Office Area: 12,300 sq. ft.

Roeslein & Associates Shanghai Facility Capabilities

Size

91,100 square feet under roof

Structural Fabrication Department: 19,000 sq. ft.

Two 48' x 200' Bay with Two 5-Ton Overhead Cranes in each bay
3 Material Saws
Bench Drill Machines
Magnetic Drills
250 Ton, 12' hydraulic press break
3/8' x 12' hydraulic shear
Plasma Cutting Machines

Carbon Steel Pipe Area: 3,230 sq. ft.

Sitting in a 48' x 200' Bay with Two 5-Ton Overhead Cranes
40' Long Auto Centering Pipe Turner for Plasma Cutting

Pipe Threading Machine
Two 36" Diameter Pipe Turners
TIG/MIG Welders

Stainless Pipe Fabrication Area: 3,230 sq. ft.

Segregated Stainless Shop
6 TIG Welders
Three 36" Diameter Pipe Turners
Stainless Steel Cleaning Machine

Electrical: 2,150 sq. ft.

PLC Programming/Installation
Lighting Systems
Machine Wiring
Cable Trays/Conduit Installs
Panel Builds

Module Assembly (Building #2) : 37,670 sq. ft.

Additional Assembly (Building #3): 32,290 sq. ft.

Finishing: 5,380 sq. ft.

16' x 46' Spray Booth
20' x 43' Sand Blast Room
HVLSP Spray Equipment
Expandable and Portable Media Blast Area
Customer Specified Blast Media

Shipping & Receiving:

Tag all Inbound Components for Projects
Bar code all Project Components for Shipping

ROESLEIN PRODUCTS

MIST COLLECTION SYSTEM

- Three stage filtration system with Camfil filter cartridges including MERV 16 final filtration
- Integral velocity sensor with local velocity readout. This sensor will provide feedback necessary to control fan speed automatically for optimum velocity through the unit and design flowrate for the mist generating equipment.
- Washable first stage filters. 98% Efficiency rated for 20 micron and larger droplets.
- Five star Energy Cost Index filter elements in 2nd and 3rd stages
- Radial pleated replaceable Merv 8 second stage filters with high wet strength frame
- V-Bank arrangement, replaceable Merv 16 third stage filters of glass media
- Filter access doors on both sides of unit with quick release latches
- Unit flow ranges: 4000, 8000 and 12,000cfm
- Dedicated panel with VFD for fan speed control available

PUMPBACK TANK

- Local above ground sump tank for each bodymaker/trimmer
- 304SS 25 gallon [6.6 liter] tank with hinged lids
- Low Shear Vertical pump designed specifically for continuous operation even with dry sump
- Reduced depth trenching possible with single sump tank eliminated. Only shallow housekeeping trenches are required in Front End when overhead wet can conveyor systems are used.
- For up to 6 bodymakers the system cost with pumpback tanks vs. with standard single sump tank is similar.

ULTRA VIOLET BOTTOM COATER

Roeslein Ultra Violet Bottom Coating (UVBC) is a mass bottom coating and ultra-violet curing system used in the D&I can manufacturing process. The UVBC system applies a more wear-resistant coating, which provides superior protection to the bottom rim surface, resulting in the reduction of aluminum oxide formation, optimizing transfer to can conveyers, transfer plates and machine infeeds. Conventional bottom coatings are typically applied after Basecoating or Decorating with a thermal-cured process in a single lane bottom coater. Roeslein's standard 36 inch wide unit will process up to 4400 cans per minute

UV Bottom Coating Benefits

- Superior control of film weight
- Provides uniform coverage resulting in 10-15% material savings
- Improved adhesion, greater mobility and excellent corrosion resistance
- UV cured application offers dry film thickness of 7-9 microns with 100% solids, compared to 1-2 microns with 35% solids with thermal cured application

Roeslein's Added Value

- Roeslein's high degree of technological expertise gained through numerous installations and coating trials with various suppliers
- Full integration and criteria development approach with professional management of scope, schedule and costs

Safety Features

- Standard safety features include immediate system shutdown upon:
 - Conveyor mat breakage or stoppage
 - Rim coater applicator stoppage
 - Fallen can drop out chutes full
 - Lamp access door(s) opened

ADDITIONAL SOLUTIONS

CHILLED WATER PUMP SKID

COOLING WATER PUMP SKID

AIR OPERATED (AODD) SUMP PUMP

BULK COATINGS PUMP SKID

DECORATOR AIRSTAND

SUMP PUMP SKID

BODYMAKER PIPE DROP ASSEMBLIES

LACQUER DAY TANK

BOTTOM RIM COAT / OVERVARNISH TANK

COOLANT FILTRATION SYSTEMS

Roeslein designs and manufactures compact, modular coolant filtration systems for D&I can manufacturing lines. The high efficiency systems utilize high-flow cartridge filters with automatic changeover capability for increased reliability and reduced downtime. Clean coolant is supplied to the bodymakers at a consistent pressure and temperature, resulting in improved front-end performance and lower maintenance costs. The standard features of the Roeslein Coolant Filtration System are:

Filtration

- (2) high efficiency carbon steel Cuno filter housings with Micro-Kleen III, 10-micron cartridges
- Interconnecting piping with valves, pressure sensors and PLC necessary for automatic, online filter changeover

Tank Assembly

- 4,000 gallon [15,142 liters] main setting tank with plate and frame heat exchanger(s)
- Electric rope-mop skimmer to remove accumulated tramp oil from unfiltered reservoir • (2) electric immersion heaters to maintain optimal oil temperature in main tank
- Ladder or stair to top of tank and man-way for easy access, top handrail for personnel safety
- Bottom drain to facilitate cleaning

Main Pumps

- (2) high efficiency close-coupled, centrifugal pumps - one online, one backup
- PLC and VFDs modulate pump speed to maintain constant oil pressure

Sump Tank & Pumps

- 1,000 gallon [3,786 liter] sump tank
- Vertical or self-priming centrifugal sump pumps
- Automatic level control through pump speed modulation
- Air operated double diaphragm pump for waste oil and wash down

Coolant Mix/Make-up and Biocide Metering

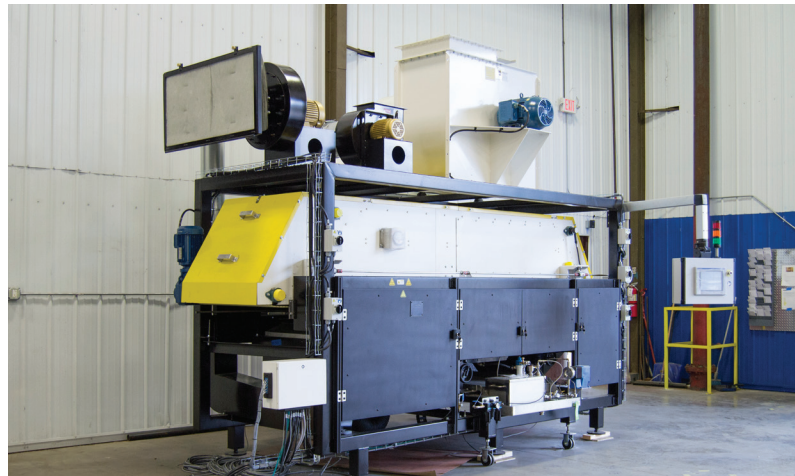
- Metering pump and static mixer for neat oil and fill water
- Automatic level control
- Metering pump for biocide injection

Controls and Instrumentation

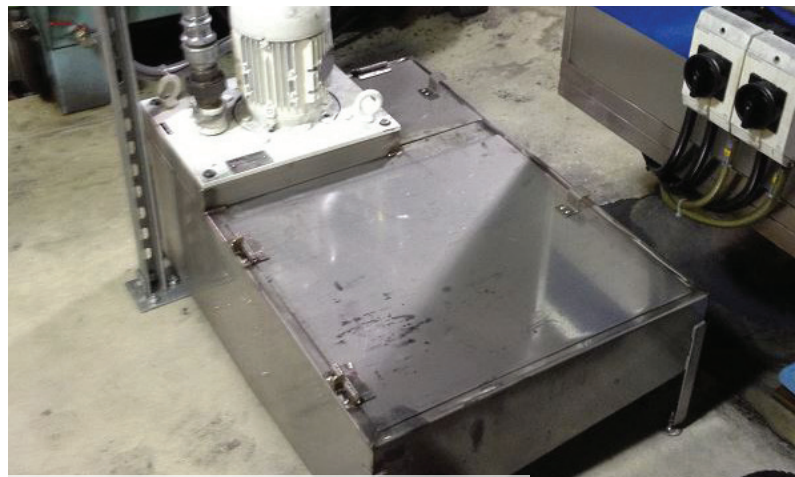
- Allen-Bradley or Siemens PLC with Human Machine Interface (HMI) module for control of filters and systems, integrated into a single NEMA 4 panel
- Sump tank local pushbutton control station and PLC located in main panel
- Single panel mounted air-conditioner for panel cooling



Coolant Filtration System



Ultra Violet Bottom Coater



Pumpback Tank System



Mist Collection System

ROESLEIN - 3D LASER SCANNING

With the ever-changing climate of the engineering industry, Roeslein & Associates stays ahead of the curve by offering customers the ability to gain an accurate digital representation of their project on a large or small scale. Our team of trained engineers uses FARO Laser Scanner Focus technology to provide 3D documentation of an entire plant or a single skid, with a point cloud data output that is viewable on a variety of software platforms and has the ability to output quick and accurate 3D digital color images.

Uses

- Develop 3D concept model of facility modifications within 3D point cloud.
- Determine existing site dimensions without the need of tape measures or survey equipment.
- Tie-ins with existing facilities.

Essentials

- A defined scope for the project to assure appropriate items are being scanned.
- A 2D plan view of the intended scan location to develop a scanning

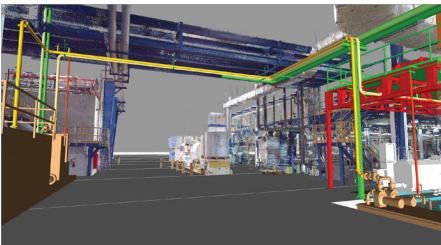
plan. This is used to estimate quantity of floor & platform level scans required based on the scope of the project.

Software Used

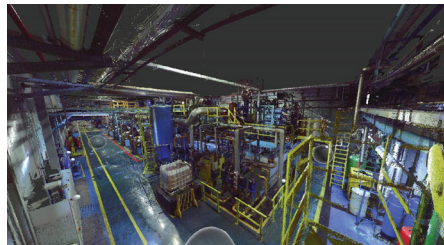
- 'Recap' for viewing point cloud and using real views (similar street view on map websites). 'Recap' available as freeware.
- 'AutoCAD' is used to xref in the point cloud and develop the 3D layout.
- 'Navisworks Freedom or Simulate' can be used to view both the point cloud and 'AutoCAD Plant 3D' model combined.

Deliverables

- Realistic high-res photos, viewable from any perspective.
- All associated Autodesk Recap files, project (.rcp) & individual scans (.rcs). Both can be viewed using either 'Recap' or using the free program, 'Navisworks Freedom'.
- Approximately one week is necessary to capture an entire (large) facility using two personnel.
- Approximately two weeks to process scanned data.



Point Cloud with Pipe Rack Concept/Tiddel



Semi Point Cloud photo



Point Cloud with Pipe Rack Concept/Tiddel

ROESLEIN SPARE PARTS

For our clients, steady production is the overall goal. That's why Roeslein & Associates offers a unique spare parts division to enable a plant manager to be prepared for equipment maintenance. Over the normal lifecycle of a piece of equipment, routine maintenance is necessary, and replacement parts may require significant lead time for procurement. That lead time translates into lost production time for your plant and a loss of revenue overall. In a proactive approach to this common problem, Roeslein offers a comprehensive spare parts selection that aims at reducing system downtime by providing anticipated spare parts during the project planning stage. Please see below the list of manufacturers Roeslein partners with to provide the best customer value.

Pumps

- Grundfos
- Pulsatron
- Goulds
- All-Flo
- Calpeda

Instrumentation

- Wellmark
- Ashcroft
- IFM Efector
- Flygt

Valves

- ASCO
- Norgren
- Bell & Gossett
- Griswold Controls
- Keystone
- Crane/Centerline
- Conbraco Apollo
- Crane Duo-Chek II

Control Panel & Remote Control Station

- Allen Bradley
- Emerson, Sola Hevi-Duty
- McLean
- Grace Engineering
- Hoffman

Misc. Equipment

- 3M
- Mueller
- Watlow
- Dosatron
- Megator
- Oil Mop

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