Kurt J. Lesker® Company

Manufacturing Division

Overview

MANUFACTURING™ DIVISION

Kurt J. Lesker® Company

Manufacturing Overview

Founded in 1954, the Kurt J. Lesker Company is a manufacturer of vacuum equipment and systems to research laboratories and high technology industries from our facilities around the world.

KJLC® Manufacturing was established 25 years ago as the engineering, machining, welding, clean assembly and test division of Kurt J. Lesker Company. The division specializes in fabrication of stainless steel and aluminum products for vacuum related applications.

The KJLC Manufacturing Division serves many markets and industries, including Vacuum Science, Photovoltaic, Defense, Semiconductor, Nuclear, Automotive, Aerospace, and R&D.

KJLC's commitment to quality is shown through our ISO 9001:2008 certification and adherence to security and confidentiality through compliance with ITAR (International Traffic in Arms Regulations).

Over 25 Years of Vacuum Chamber Manufacturing Experience

Lesker Manufacturing Online

For more information about our manufacturing capabilities or the Kurt J. Lesker Company in general, please visit www.lesker.com.

Awards and Acknowledgments

Kurt J. Lesker Company has won the 2010 Tech 50 award for Advanced Manufacturing from the Pittsburgh Technology Council and is a finalist for the 2010 Manufacturer of the Year from the Pittsburgh Business Times. Our quality and global efforts of continuous improvement have made us one of the most respected manufacturers in the industry.

Pittsburgh Technology Council

Quality

Our Quality Mission: “The Kurt J. Lesker Company provides a quality vacuum product delivered on time and produced by a qualified team committed to becoming our customer’s primary vacuum supplier choice.”

KJLC Manufacturing’s Quality Management System was established to allow our company to meet the requirements of the ISO 9001:2008 Quality Assurance Standard and 10 CFR Part 50, Appendix B for nuclear industry applications.

Quality, however, is not ensured by a framed certificate, it is ensured by adherence to processes and dedication to continual improvement.

Kurt J. Lesker Company is an ITAR Compliant Facility

Engineering

KJLC’s team of engineering professionals is skilled at addressing tough technical problems and finding the right answers. Engineering closely supports machine shop and assembly personnel by designing for manufacturability and integration with other equipment where needed. Many of our projects involve non-disclosure or ITAR compliance—all team members are fully conversant with procedures for handling controlled and sensitive information. Lean practices such as 5S, Cellular Manufacturing, Kanban material replenishment, and visual work instructions are part of our everyday workflow.

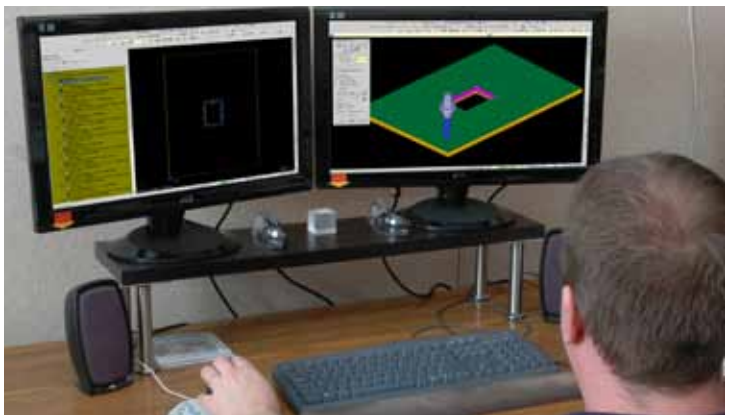
In House Electrical, Mechanical and Software Engineers

Areas of Expertise

- Industrial Design of Capital Equipment
- Conceptual Design through Prototype / Build
- Machine Design / Mechanisms Design
- Systems Integration (EE, Controls, Software)
- Process Gas Distribution
- Rough Vacuum through Ultra High Vacuum Applications
- Pneumatic Systems
- Electrical Power Distribution
- Rack and Panel Equipment
- Engineering Analysis
- Structural Analysis
- Thermal Analysis
- Detailed Design and Documentation
- Prototype Fabrication
- Assembly / Test / Debug
- Production Scale-up and Integration

Industries of Note

- Industrial Products / Capital Equipment
- Semiconductor Capital Equipment
- Nanotechnology Capital Equipment
- Electronic Product Development
- Medical Product Development
- Nuclear Energy
- Solar Energy



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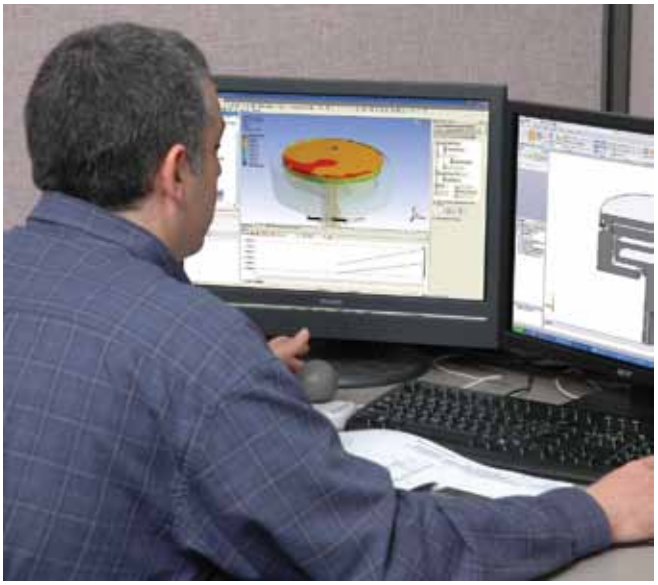
Manufacturing Software



CAD Software

Our mechanical designers and engineers use the latest releases of Siemen's Solid Edge 3D modeling software to produce detailed part and assembly models. These models are then transformed into 2D mechanical drawings that are structured to follow the manufacturing process the physical part encounters. We strive to ensure each and every component is designed with the method of manufacture in mind. Our goal is to produce the right quality part at the minimum cost .

CAM Software

Our CNC programmers directly access the engineering 3D solid models using the latest release of Mastercam® CNC Programming software. By directly using the engineering design files, our CNC programmers are able to rapidly create NC code for high quantity production as well as single part orders.

Project Collaboration

We frequently collaborate on designs with our customers through the use of technologies such as video conferencing and web hosted meetings. Let us show you how we can seamlessly interact with your component over a GoToMeeting® web-based collaboration session.

Finite Element Analysis Software

KJLC uses ANSYS finite element analysis software to accurately address structural, thermal and magnetic field modeling plus simulation-driven product development.

Asprova Scheduling Software

We use Asprova's manufacturing oriented scheduling system for multi-process production schedules. It helps coordinate our supply chain from purchasing, through manufacturing to sales. This package also allows us to simulate the impact of capacity on pending quotations and orders.

Full Time Staff of Industrial and Manufacturing Engineers

Acceptable Document Formats

Documents from these programs are acceptable and can be converted into our CAD/CAM programs:

Native File Formats

- Solid Edge
- Unigraphics
- Pro/E
- AutoCAD
- Solid Works
- Microstation

Universal File Formats

- STEP
- Parasolid
- ACIS
- IGES

Machining

KJLC's large machine shop is equipped with modern machinery serviced by 10 ton capacity overhead cranes. Our complement of CNC milling centers, boring mills, and lathes enables high speed, repeatable component production. We specialize in tight tolerance machining using geometric dimensioning & tolerances to ASME Y14.5-2009.

Sulfur-free biodegradable coolant is used throughout KJLC Manufacturing's machine shop to ensure cleanliness for vacuum components. In addition to vacuum chamber and component manufacturing we machine prototype and production quantities to customer prints. Our specialty is working with 300 series stainless steels, most aluminum alloys, and some Inconel alloys.

All jobs that are produced in KJLC's Manufacturing areas have detailed production routers, require documented in-process inspection, and have real-time job status data collected from the shop floor.

We believe our people set us apart, and to that end we utilize several forms of training including NIMS-based apprenticeships, recurrent training programs, and continual education programs.

Surface finish options available from KJLC Manufacturing include (depending on the material and its form):

- Brushed (#4)
- Polished mirror-finish (#8)
- Electro-polishing
- Glass bead blasting
- Anodizing
- Powder coating
- Painting
- Nitric acid passivation
- Gold, silver, nickel plating
- Rotary surface grinding

In House Machining Capabilities of Up to 158 Inches/4000 mm.

Welding

KJLC Manufacturing employs a team of highly skilled ASME Section IX certified welders providing precision hand-welding to tight tolerances for vacuum and non-vacuum products. The products range in size from ounces to the 5-ton limit of the welding shop's overhead crane.

KJLC Manufacturing fabricates single prototypes or production quantities in 300 series stainless steels, aluminum, and some Inconel alloys to customer specifications.

Our welders are also highly skilled fitters allowing us to achieve functional, leak tight, and a esthetically pleasing gas tungsten arc (TIG) fusion welds. In addition, we commonly perform gas tungsten arc fillet welding; gas metal arc welding (MIG); flux-cored arc welding; and orbital welding.

ASME Section IX Certified Welders with Years of Experience

Inspection

In-process inspections are made at every step by the KJLC Manufacturing team member responsible for that step. At select stages and again on job completion the product is inspected by our experienced quality control technicians using the appropriate manual inspection tools or a coordinate measuring machine. Complex parts are dimensionally checked with a FARO coordinate measuring machine.

KJLC has a full complement of calibrated inspection equipment including calipers, bore gauges, pin gauges, micrometers, thread gauges, optical comparators and profilometers. Every inspection tool used by KJLC Manufacturing carries an identification tag and is re-calibrated on its scheduled date. Calibration is done by in-house QC staff (using transfer standards) and outside staff as required.

KJLC Manufacturing tests all vacuum components and assemblies with state of the art helium leak detectors (ultimate sensitivity of 1.0E-12 atm cc/sec He). Leak check certifications are provided for any product upon request and can be performed to ASME 498 or 499 standards as required.

Computerized Inspection with FARO Coordinate Measuring

Assembly & Test

KJLC Manufacturing includes three large white room areas, two in the US and one in the UK. White room areas provide a positive pressure filtered environment for clean project and system assembly and test. Equipment includes residual gas analyzers, helium leak detectors, Alpha Step 200 profilometers, 4-point (resistivity) probes, an XLS-100 ellipsometer, vacuum baking, power drops to 480VAC, and a 150 gal/min closed loop chiller system.

Specializing in assembly of vacuum components and systems, core competencies include clean, precision mechanical assemblies, electrical control and power distribution, and manual and automated functional testing.

In addition to customer visits to KJLC for observation and functional test, we provide on-site installation, system commissioning, and training.

GLOBAL VACUUM PRODUCT LINES

VACUUM MART™ DIVISION

Vacuum Valves & Hardware
- Flanges, Components, & Fasteners
- Gate & Angle Valves
- OFHC Copper Gaskets
- Bellows, Tubing, & Seals
- Semiconductor, PV, & FPD Process Valves

Feedthroughs
- Power & High Voltage
- Viewports (Optical Feedthrough)
- Coaxial & Instrumentation
- Thermocouple
- Ferro-Magnetic Fluid Rotary Drives
- USB

Vacuum Pumps & Accessories
- New & Remanufactured
- Rotary Vane & Piston
- Scroll & Diaphragm
- Screw & Roots Blowers
- Turbo & Diffusion
- Cryogenic & Ion
- Traps & Filters
- Complete Offering of Pump Repair Services

Vacuum Fluids
- Full Line of Mechanical Pump Oils
- Fomblin® PFPE - Inert PFPE
- Galden® PFPE - Heat Transfer Fluid
- Vacuum Greases, Sealants, & Solvents
- Pump Oil with R/O Additives
- Silicon Diffusion Pump Oils
- Pump Oil Recycling

Pressure Measurement
- Analog & Digital Active Gauges
- Pressure Indicators & Controllers
- Wide-Range Gauges
- Multi-Gauge Controllers
- Replacement Gauge Tubes
- MKS Baratrons®

Sample Manipulation & Motion
- Rotary & Linear Motion
- Linear Positioners
- Wobble Sticks & Port Aligners
- XYZ Manipulators
- Multi-Axis Manipulators
- Sample Transfer Probes
- Sample Heating & Rotation
- Motion Control
- Sample Distribution Center

Vacuum Services
- Full Line Pump Repair/Rebuild Services
- Pump Oil Recycling
- Technical Information
- Technical Consulting
- Decontamination
- Magnetron Cathode Service
- Contract Manufacturing

PROCESS EQUIPMENT™ DIVISION

Deposition Sources
- Torus® Magnetron Sputtering Sources
- Electron Beam Evaporation
- Organic Material Sources
- Electron Beam Sources
- Ion Sources
- Thermal Evaporation Sources

Process Instrumentation
- Film Thickness
- Mass Flow Controllers
- RF & DC Power Supplies
- Pulsed DC Power Supplies
- Power Supplies for Evaporation

System Components & Custom Engineered Solutions
- Turnkey & Partial Build Solutions
- Comprehensive Engineering Design Support
- Chambers, Frames, & Mounting Structures
- High Temperature & Bakeout Heater Assemblies
- Heater Power Supplies
- Substrate Load Locks & Transfer Vessels

Vacuum Systems
- Thin Film Deposition Systems
- Cluster Tools
- Box Coaters
- General PVD Systems
- Computerized Systems
- Combinatorial Systems
- Organic Material Deposition Systems
- R&D Sputter Tools
- Vacuum Furnaces & Ovens
- Atomic Layer Deposition (ALD)
- Drum Coaters
- In-line & Linear Systems
- R2R Systems

MATERIALS™ DIVISION

Deposition Materials
- Sputtering Targets
- Precious Metals & Reclaim
- Evaporation Pieces
- Thermal Evaporation Sources
- E-Beam Crucible Liners
- Bonding Service
- Backing Plates
- Ceramic Materials Manufacturing (CMM)

MANUFACTURING™ DIVISION

Vacuum Chambers & Components
- Standard SS Cylindrical, D-Shaped, Spherical, & Box Chambers
- Standard Pyrex® Glass Bell Jars & Cylinders
- Standard Building Blocks to Customize Your System
- Custom Chambers
- Array of Finishes & Materials
- Easily Build Your Own Chamber with the Custom Chamber Configurator On-line

Manufacturing & Fabrication
- State-of-the-Art CNC Machining
- Mechanical, Manufacturing, & Industrial Engineering
- Computer Based Scheduling & Routing
- CAD, CAM, & FEA Software
- Coordinate Measuring Machine Inspection (CMM)
- UHV Compatible Cleaning Process

We have a network of representatives around the world ready to service the international vacuum community.

Visit our website to find the representative nearest you, or contact our International Sales Department.

www.lesker.com/locations

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