

# About K&L

## ◆ Company Profile

K&L Microwave designs and manufactures a full line of RF and microwave filters, duplexers, and integrated assemblies, including ceramic, lumped element, cavity, waveguide, and tunable filters. K&L's products are used in a wide variety of defense electronics, homeland security, and commercial communication systems, including government and for-profit space programs.

K&L Microwave is a subsidiary of Dover Corporation, a diversified global manufacturer with annual revenues of over \$8 billion. Dover is committed to operational excellence, innovation, and market leadership. K&L was founded in 1971 and acquired by Dover in 1983, and has been a leading supplier of filters and filter-based products throughout its history.

K&L has three facilities in Salisbury, Maryland, with a total of 170,000 square feet. K&L has been a pioneer in vertical integration in the filter industry, enabling faster response times. Capital investment includes over 150 network analyzers; an on-site calibration lab; advanced circuit design and electromagnetic analysis software packages; laser-welding and laser-labeling devices; a custom-designed plating and wastewater closed-loop operation; a fully equipped machine shop with computer-numerically controlled (CNC) vertical mills, horizontal mills, and lathes; power-testing equipment; and a test laboratory featuring thermal shock chambers and specialized measurement equipment for vibration, leak, humidity, salt-fog, and variety of other environmental requirements. In addition, K&L streamlines production by teaming with customers to implement lean manufacturing and maintains a Dominican Republic facility for high-volume, commercial throughput.

K&L Microwave's Salisbury operation adheres to all federal, state, and local laws and regulations, including, but not limited to, those of OSHA, the EPA, the Sarbanes-Oxley Act, the EEOC, and a wastewater discharge permit with the City of Salisbury.

## ◆ Product Development and Selection

K&L Microwave is a design-to-order RF and microwave filter manufacturer. As such, the technical sales force and engineers work closely with customers' engineering groups to provide design support and custom solutions. Partnering in this way allows K&L to provide enhanced value through integrated technologies. Senior engineers often travel to client facilities to conduct "lunch-and-learn" sessions and to participate in design reviews. For customers who visit our web site ([www.klmicrowave.com](http://www.klmicrowave.com)), K&L's Filter Wizard® software simplifies the selection of the right filter product from a vast number of available designs.

## ◆ Our Goal

K&L's mission is to produce high-quality, cost-effective solutions based on customers' specific needs. By controlling internal design and production processes, K&L ensures and guarantees high quality and exceptional product performance. The K&L team is committed to achieving excellence through aggressive investment in research and development, through capital investments in manufacturing technology, and through the use of proven and innovative designs.

## ◆ Quality, Sustainability, and Compliance

K&L maintains a comprehensive quality management system focused on areas directly impacting product safety and reliability, and is AS9100 registered. AS9100 certification is the worldwide mark of excellence for the aircraft/aerospace industry. K&L's Salisbury facilities are ISO 14001:2004 registered. K&L applies soldering and workmanship practices that conform to customer and military standards, American National



Standards Institute (ANSI) standards, and IPC standards, including IPC J-STD-001 and IPC-A-610, and has the capability to meet RoHS requirements upon request.



AS 9100



ISO 14001



## RoHS Compliance

The European Economic Community (EEC) Restriction of Hazardous Substances (RoHS 2011/65/EU) directive is currently impacting the RF/microwave market. The directive dictates that all products sold in Europe and certain other locations will be free of designated hazardous materials, with some exceptions. One significant exception is for any product used in a military application.

Specific materials that are banned based on the RoHS directive include:

- Lead
- Mercury
- Hexavalent Chromium
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)
- Cadmium

Since K&L Microwave serves both the military and commercial markets with custom designed filters and filter-related assemblies, the RoHS directive requires K&L's customers to identify the need for RoHS compliance in their specifications and/or orders. K&L has the capability to meet RoHS requirements and does so upon request.

## Conflict Minerals Policy

In May 2013, K&L published an updated summary of preparations for, and the status of its response to, the Conflict Minerals disclosure requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1502. K&L Microwave and its parent company, Dover Corporation, are aware

of the requirements under Dodd-Frank. Dover Corporation is a NYSE listed company and, as such, will be providing disclosures under its own SEC reporting requirements.

Determining the source of the Conflict Minerals contained in the many parts, components, and materials used in K&L Microwave's products is a detailed, lengthy task. As part of Dover Corporation, we are working towards full compliance to the Dodd-Frank requirements. The Dover companies have assembled a team of internal and external resources and are using our data bases of supplier information to begin collecting information on the sources of the Conflict Minerals included in our products and processes. We expect that it will be some time before we can provide full details of the country of origin for all products produced by K&L Microwave.

We have taken steps to advise our supply chain of the requirements under Dodd-Frank, and have amended purchase orders and contract terms to reflect the Conflict Minerals disclosure requirements. In addition, Dover Corporation will be formulating systems to manage documentation and representations on Conflict Minerals received from our thousands of suppliers.

We do not knowingly source any materials, parts, or products that contain Conflict Minerals from the Covered Countries, as defined in Dodd-Frank. We will continue our work on this due diligence process and post periodic updates on its status. We appreciate the ongoing support and cooperation of suppliers and customers towards full implementation of our Conflict Minerals disclosure process to ensure the effective handling of disclosures and requirements.

## REACH Compliance

K&L Microwave is fully aware of the European REACH regulation and supports the REACH objective of improving the protection of human health and the environment.

As it pertains to the REACH regulation, our products are considered articles (components) and shall not release any substance when used as intended and according to recommended specifications and parameters.

## About K&L

K&L Microwave is aware that the European Chemical Agency (ECHA) has identified a list of substances that are considered as Substances of Very High Concern (SVHC). We have determined that our delivered products do not contain any of these SVHCs above the threshold of 0.1% by weight as required by the REACH legislation.

K&L Microwave intends to continue to produce products in accordance with the requirements of the REACH regulation. We will continue to take all the necessary steps to ensure compliance. We will inform our customers, upon request, of any exceptions to the REACH requirements.

Revisions to the SVCH candidate list as found on <http://echa.europa.eu/candidate-list-table>.

Revision Dates:

9 October 2008, 13 January 2010, 30 March 2010, 18 June 2010, 15 December 2010, 20 June 2011, 19 December 2011, 18 June 2012, 19 December 2012, 20 June 2013, and 16 December 2013

### ◆ Ordering Information

Always order by model or part number. For modifications or special testing to meet specific requirements, contact our Sales Department. Your order may be placed directly to the factory or through your local representative.

**K&L Microwave, Inc.**  
**2250 Northwood Drive**  
**Salisbury, Maryland 21801**  
**Phone: 410-749-2424**  
**Fax: 443-260-2268**  
**[sales@klmicrowave.com](mailto:sales@klmicrowave.com)**

Unless shipping instructions accompany the order, we shall use our own judgment as to the best method of shipment. The prices of our products include packing, but do not include shipping costs.

### ◆ Delivery

To obtain current delivery schedule, contact our Sales Department or your local representative. Expedited delivery of 72 hours is available at a slight additional charge.

### ◆ Prices

Determination of price, terms, and condition of sales and final acceptance of orders are made only at our plant in Salisbury, MD. Prices quoted are F.O.B. Salisbury, MD. Terms are Net 30 Days for established accounts.

### ◆ Specifications

We reserve the right to discontinue any item or product without notice and to change specifications at any time without incurring any obligation to incorporate new features in products previously sold.

### ◆ Warranty

Products manufactured by K&L Microwave are warranted against defective material and workmanship for one year from date of shipment. K&L's obligation for any defect shall be limited to repair of defective parts. K&L assumes no liability if defects result from improper use, operation above rated capacities, repairs not made by us, or misapplication of equipment. No other warranty is expressed or implied and K&L Microwave neither makes nor authorizes any other person to make any other warranty concerning its products. K&L is not liable for consequential damages. Warranty returns must be first authorized by the sales office and are to be returned prepaid. Customers requiring product service should contact K&L Microwave directly, at which time a Return Material Authorization (RMA) number will be assigned to authorized return. The RMA number should be attached to documentation included with the unit(s) being returned.

### ◆ On the Web

In parallel with this catalog, K&L Microwave provides information on existing products and new product releases at the company's main web site, [www.klmicrowave.com](http://www.klmicrowave.com), and offers the Filter Wizard® web application at [www.klfilterwizard.com](http://www.klfilterwizard.com).

Filter Wizard® is a filter synthesis and selection tool that streamlines identification of filter products meeting customer specifications across a large

portion of K&L's standard product offerings. Filter Wizard® includes bandpass, lowpass, highpass, and bandreject response types, with all-pole and elliptic solutions. The selection tool's bandpass search capabilities include Chip & Wire filters, Ceramic filters, Cavity filters (combine and interdigital), and Waveguide filters, as well as KeL-fil®, KeL-com®, Mini-Max®, Mini-Pack®, and high-Q ceramic puck options. Filter Wizard® accelerates user progress from specification to RFQ for RF and microwave filters spanning an ever-increasing range of response types, bandwidths, and unloaded Q values.

Much of the time, Filter Wizard® can speed selection of the right filter product for your communications network, RF sub-assembly, or military system application from a vast number of available designs. Provide the Filter Wizard® web application with your desired specifications, and the software will return a list of products that match, placing response graphs, outline drawings, and downloadable s-parameters at your fingertips.

## ◆ Strength and Synergy



K&L Microwave is one of four companies belonging to Microwave Products Group (MPG). The MPG companies design, manufacture, and sell special electronic components and systems, including high-performance microwave and RF filters, switched filter banks, switches, switch matrices, integrated assemblies, and co-site signal interference solutions. MPG products are used in military, space, telecom infrastructure, and industrial applications where

function and reliability are crucial. K&L's three MPG sister companies are BSC Filters ([www.bscfilters.com](http://www.bscfilters.com)), Dow-Key Microwave ([www.dowkey.com](http://www.dowkey.com)), and Pole/Zero Corporation ([www.polezero.com](http://www.polezero.com)). K&L and sister company Dow-Key Microwave partner to provide tailored test system architectures and innovative rack assemblies.

Microwave Products Group ([www.dovermpg.com](http://www.dovermpg.com)):  
"Enabling Communication and Signal Control"

## ◆ About Dover Corporation

Dover Corporation is a diversified global manufacturer with annual revenues of over \$8 billion. For over 50 years, Dover has been delivering outstanding products and services that reflect its market leadership and commitment to operational and technical excellence. The Company's entrepreneurial business model encourages, promotes, and fosters deep customer engagement, which has led to Dover's well-established and valued reputation for providing superior customer service and industry-leading product innovation. Dover focuses on innovative equipment and components, specialty systems, and support services through its four major operating segments: Communication Technologies, Energy, Engineered Systems, and Printing & Identification. Headquartered in Downers Grove, Illinois, Dover employs 35,000 people worldwide. Dover Corporation is traded on the New York Stock Exchange under "DOV."

