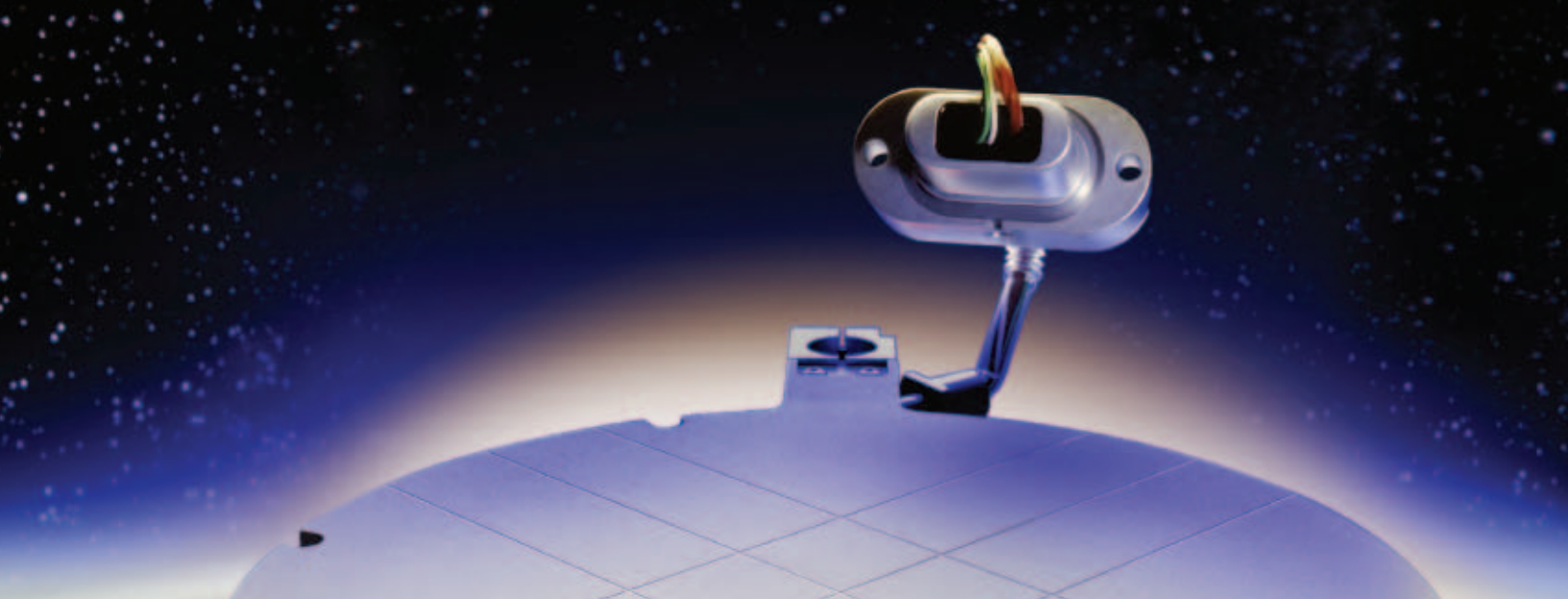




Douglas Electrical Components

Ductorseal® Hermetic Feedthrus



THE OUTSOURCE RESOURCE

## Subassemblies & Vacuum Components

For turn-key subassemblies,  
hermetic feedthrus,  
connectors and  
feedthru systems

ISO Registered



Certificate No. 3415

**D**ouglas Electrical Components has established a tradition of innovation and solid customer support in response to the diverse and demanding requirements of rapidly advancing technologies.

As outsourcing requirements evolve and tight production scheduling, diminished budgets and daunting technical challenges continue to be the norm, Douglas Electrical Components continues to participate with our customers in meeting those challenges and finding solutions.

Solutions that cut costs and lead time without compromising quality. Solutions that recognize and satisfy technical challenge. Solutions that are a direct result of the unrelenting energy Douglas Electrical Components applies to the concept of Quality as a Frame of Mind and to the essentials of Customer Satisfaction as a corporate way of life.

DEC has become identified as a leader in High Quality, Cost Effective, Fast Turn Around Feedthrus, Hermetic Connectors, Feedthru Systems and Turn-key Subassemblies.

DEC's traditions of unfailing customer support and high quality have earned the confidence and continued business of such companies as: General Electric, Varian Semiconductor Equipment Associates, Applied Materials, ABB, Lam Research, Axcelis, KLA Tencor, Seagate, Motorola and Lockheed Martin to mention just a few.

These companies and many other have identified Douglas Electrical Components as their *high confidence* source for outsourcing turn-key subassemblies, hermetic feedthrus and connectors and feedthru systems.

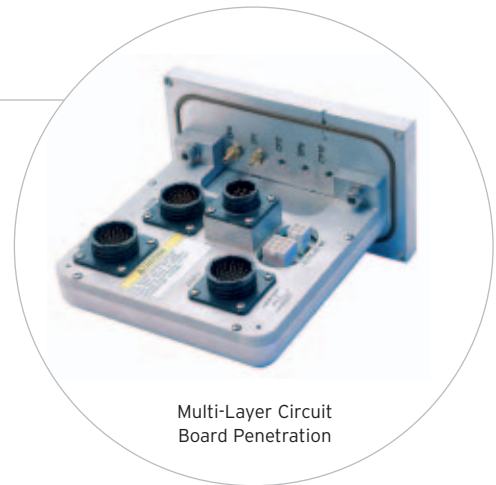
## Case Histories

### Ion Implant Application

*Multi Layer Circuit Board Penetration*

**Challenge:** Penetrate vacuum containment to allow massive flat cable termination on one side of a hermetic barrier and multiple cable termination on the other.

**Solution:** Douglas Electrical Components teamed with the customer to design and manufacture a Feedthru Subassembly incorporating Douglas Electrical Component's epoxy sealing technology, a specifically designed o-ring face seal connection on one side and discreet connections including multi-pin circular connectors on the opposite side. The Feedthru maintains integrity of a  $10^{-7}$  Torr vacuum environment.



Multi-Layer Circuit Board Penetration

### Semiconductor Wafer Stripper Application

*Turn-key Heated Paddle Subassembly*

**Challenge:** As an extension to supplying a hermetic Feedthru that provides power and thermocouples to a pre-strip wafer heater, Douglas Electrical Components was asked to supply the entire turn-key subassembly, while also supporting the customer's JIT (just-in-time) inventory system and protecting their purchasing cost control goals.

**Solution:** In addition to the design and manufacture of the high vacuum feedthru, Douglas Electrical Components assumed management of diverse vendors and their supply of other discreet parts. The resulting critical turn-key subassembly is now supplied to the customer on a JIT basis and at a total cost that is significantly lower than the original cost of managing the assembly themselves. The individual assemblies are supplied with test documentation including Helium Mass Specification Leak Test, electrical Hi-Pot (Leakage Current), and a thermal profile of the wafer paddle.



Turn-key Heated Paddle Subassembly

Visit us at [www.douglaselectrical.com](http://www.douglaselectrical.com) or call 973.627.8230 to discuss your requirements with our applications engineering team.

## Capabilities

- Sealed Wire and Cable Assemblies
- Sealed Connectors
- Interconnect Cables
- Turn-key Subassemblies; Douglas Electrical Components will utilize customer furnished or sourced materials to supply a pre-tested and documented ready to install assembly. Such assemblies in the past have included: transducers, sensors, switches, heaters, connectors, flexcircuits, ribbon cables, thermocouples, fiberoptics and other discreet components.
- Ship to Stock
- JIT (just-in-time) Inventory Support
- Support Customer Purchasing Cost Control

## Quality Control

Complete Test and Documentation:

- Helium Mass Specification LEAK DETECTION to an allowable Leak-rate of  $<1 \times 10^{-9}$  STD. cc He/Second
- Standard thermal cycling of  $-40^{\circ}\text{F}$  to  $+225^{\circ}\text{F}$
- Customer described cycling is also available
- Hi-Pot & Continuity
- Insulation Resistance
- Pull (Tensile) Testing of conductors
- Impact
- Other customer specified testing can also be provided
- Vacuum bakeout service to ensure prevention of vacuum contamination

### Hermetic Connectors for Vacuum Application

*Hermetic, In-Line Subassemblies*

**Challenge:** Design a multi-pin Hermetic Connector set to allow bench testing of a system prior to committing the system to a Vacuum.

**Solution:** The flexibility of Douglas Electrical Components design and manufacturing techniques resulted in the In-Line Potcon concept, labeled PBTR. The bulkhead Feedthru connection has a plug shell component on the air side and a receptacle shell component on the vacuum side. The mating cables are the reverse, a cable receptacle on the air side and a cable plug on the vacuum side, thus allowing direct cable mating without the bulkhead interface. This penetration concept applies to virtually any connector type including D-Subminiatures.



Hermetic In-line  
Subassembly

### Process Equipment Application

*Dual Cable Harness Penetration*

**Challenge:** Provide penetration into limited access electronics package for two Multi-Conductor Cables.

**Solution:** Design and build a subassembly incorporating 2 cable Feedthrus installed in the package cap. The limited space for manipulation precludes the use of Hermetic Connectors. Douglas Electrical Component's specifically designed gas-blocked and sealed cables are installed directly in the cap and hermetic access is complete.



Dual Cable Harness  
Penetration

Standard allowable leak-rate on this subassembly and other Douglas Electrical Components products is  $<1 \times 10^{-9}$  STD. cc He/Second.

DuctorSeal™ is a registered trademark of Douglas Electrical Components. Readyseal, Studseal, Optiseal and Potcon are trade names of Douglas Electrical Components.

Visit us at [www.douglaselectrical.com](http://www.douglaselectrical.com) or call 973.627.8230 to discuss your requirements with our applications engineering team.

## Vacuum or Pressure Feedthru Products



**Ductorseal Hermetic Feedthrus** offer standard or custom wires hermetically sealed to a wide variety of housing designs and sizes. They are easy to specify solutions to pressure or vacuum penetration problems and can include from 1 to 1,000's of individual conductors, from vacuum to 10,000+ PSI.



**PotCon™ Feedthrus** incorporate standard connectors and/or wire harnesses in a single fully sealed housing. Virtually any connector may be specified and sealed to the housing for reliable mounting for vacuum or pressure use.



**OptiSeal™ Feedthrus** now allow you to specify a hermetic seal on your fiberoptic cable(s) or connectors for vacuum or pressure use in any of our standard housings or in special housings. Multiple channel feedthrus are available.



**StudSeal™ Hermetic Stud Feedthrus** seal large copper studs in three housing configurations and in a wide range of sizes. They are useful for vacuum or pressure applications where heavy current or high voltages penetrate a barrier.



**Vacuum Flange Hermetic Feedthrus** seal virtually any conductor (including fiberoptics, thermocouples, shielded wires, etc.) in standard vacuum fittings. These units are suitable for use to  $10^{-7}$ mm Hg.

Custom Interconnect Cables or Assemblies are also available to provide a fully engineered solution for one-stop vacuum or pressure penetration requirements.

Additional Capabilities to our standard lines of hermetically sealed feedthrus, we also offer:

- Standoffs
- Splash proof feedthrus
- Strain reliefs
- Dust proof feedthrus
- Custom application specific designs with special housings, conductors or environments



**Douglas Electrical Components**

14 Beach Street  
Rockaway, NJ 07866  
T 973.627.8230 F 973.627.5798  
www.douglaselectrical.com