



Hermetic Connectors

Leading hermetic electrical connectors
& electronic packaging solutions



+1 800.323.9612
cinch.com

Cinch Connectivity Solutions Technology & Capabilities

Cinch Connectivity Solutions specializes in the science of hermetic sealing design and manufacturing. Our product engineering and development activities employ cutting edge technologies, and our various technologies and expertise enable us to deliver the right solutions and products to meet your application needs.

Exclusive Ceramic

Dielectric Material Seals

- Copper Alloy Contacts
- Nickel Alloy Contacts
- Titanium Alloy Contacts

Engineering

- 3D Design
- Design-to-Cost Analysis
- Process Support

Metal-to-Metal Joining

- Explosion Welding
- Laser Welding
- Vacuum Brazing/Soldering
- Diffusion Bonding
- Furnace H2 Brazing/Soldering

Metal-to-Ceramic Joining

- Active Brazing

Precision Machining

- Milling
- Turning

Wire Assembly

- Wire Attachment
- Harness Termination

Proven technologies and process, Cinch delivers solutions that protect our customers' electronics in harsh environments.

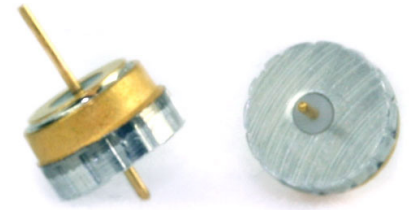
Cinch utilizes advanced technology to design and manufacture our high reliability hermetic connectors. Many of our connectors incorporate our exclusive ceramic dielectric material in conjunction with bi-metal components produced through explosion welding, vacuum brazing, furnace brazing, diffusion bonding and/or laser welding. We also offer Cinch's patented twist pin design, featuring 7 points of contact, in our Dura-Con line of connectors. The twist pin has proven ability to operate under extreme conditions of shock and vibration. Cinch's connector bodies can be fabricated from virtually any metal including aluminum, stainless steel and titanium. Our wide range of contact materials include copper, stainless steel, aluminum, and titanium. Our product offerings include Mil-Spec compliant interfaces, and we also provide custom solutions with our creative, hands on engineering and end to end approach.

Advanced technology and performance.

Cinch's exclusive ceramic dielectric material is a core technology used in the production of our advanced connector line, setting new performance standards and displacing the traditional methods of glass to ferrous alloy sealing. Our multiphase devitrified ceramic compound is used as a direct replacement for glass. When fused to copper alloy or stainless steel contacts, the seals provide superior hermetic reliability in harsh environments that would simply destroy competing products. Our advanced processes join dissimilar metals through explosion welding, vacuum brazing, diffusion bonding and laser welding. This core manufacturing technology strengthens weak points within an assembly by eliminating solder joints while providing the ability to customize physical properties such as thermal conductivity, weight, stiffness or expansion rate. Cinch delivers high performance hermetic assemblies from materials not often supplied by others in the industry, allowing us to provide unrivaled performance and reliability.

Aluminum Weldable Stabilizer Series, RF Feedthroughs

Featuring an exclusive press-in knurled flange, Cinch aluminum laser weldable 50 ohm feedthroughs align the feedthrough and maintain its position during welding, eliminating the tendency for the feedthrough to move during the welding process. This results in superior grounding to the housing. The press-in feature requires a less complex hole detail in the housing and provides consistent grounding each and every time. The press-in feature is available in all form factors of coaxial feedthroughs including flange mount adaptable (FMA), SMA, SSMA, SMP, SMPM, and SMPS.



General Design Specifications

- All interfaces manufactured in accordance with MIL-STD-348
- Leak Rate is less than 1×10^{-9} cc/sec He at one atmosphere differential pressure
- Operating temperature range for RF feedthroughs -65°C to +200°C
- Dielectric is Corning 7070 equivalent glass
- Nominal Impedance is 50 Ohms
- RF grounding spring is made of Nickel/Gold plated beryllium copper

Dual Lobe Nano-Miniature Connector

Cinch Nano connectors are ideal for smaller, lighter microwave packages as well as applications such as Cryogenic, Space, Optical, Petroleum, and UAV systems. Our standard offering includes the dual row and single row laser weldable hermetic Nano connectors in aluminum, titanium, and stainless steel with beryllium copper contacts individually sealed utilizing our exclusive ceramic dielectric insulator. Ours are the most reliable hermetic connectors available, and they meet or exceed MIL-DTL-32139 requirements.



General Design Specifications

- All of these connectors are offered in contact configurations of 9, 15, 21, 25, 31, 37, and 51
- Leak rate is less than 1×10^{-9} cc /sec He at one atmosphere differential pressure
- Internal pins can be configured to accept insulated wire, wirebonds, ribbon welds, or flex
- Operating temperature range for hermetic receptacles -200°C to 350°C
- Insulation resistance is $> 5,000$ Megohms at 250 VDC
- DWV: Connectors show no evidence of breakdown or flashover at 300 VAC
- Current rating: 1 amp per contact

Micro-D Connectors, MIL-DTL-83513 with Exclusive Ceramic Dielectric Material

Cinch's hermetic Micro-D connectors with our exclusive ceramic dielectric material option in conjunction with BeCu contacts create the best hermetic seal on the market. These seals provide superior hermetic reliability to conventional glass seals and lesser ceramics. The Cinch ceramic dielectric material is impervious to crack propagation, the #1 failure mode of conventional glass seals and lesser ceramics.



Available in 9, 15, 21, 25, 31, 37, 51, and 100 count pin/socket configurations, these connectors are qualified to MIL-DTL-83513. The non-mating side can be supplied with insulated wire, custom flex circuits, solder cups, or configured to accept wire bonds. Leak rates are less than 1×10^{-9} cc/sec He at one atmosphere differential pressure. The Micro-D connectors have a temperature range of -200°C to 200°C . These connectors are ideal for space applications, IR systems, UAVs, and integrated microwave assemblies.

General Design Specifications

- All interfaces manufactured in accordance with MIL-DTL-83513
- Leak Rate is less than 1×10^{-9} cc/sec He at one atmosphere differential pressure
- Internal pins can be configured to accept insulated wire, wire bonds, solder cups, or flex
- Operating temperature range for Micro-D connectors -200°C to $+200^{\circ}\text{C}$
- Beryllium-Copper Pin/Sockets are individually sealed with our exclusive ceramic dielectric material
- Current rating: 3 amps per contact

UHV Vacuum Products

Cinch offers the most extensive line of multipin feedthroughs in the vacuum industry. Our feedthroughs and connectors are designed to be laser welded into flanges or fittings and configurations are available in stainless steel and aluminum, and titanium flanges can be manufactured upon request. In addition to flange mounted connectors and feedthroughs on standard vacuum flanges, custom configurations or multiple connectors on a single flange are also available in virtually any material.

Cinch multipin connectors utilize our exclusive dielectric compound in conjunction with BeCu contacts to create the best hermetic seal on the market. Our ceramic dielectric material seals provide superior reliability to conventional glass seals and lesser ceramics.



General Design Specifications

- All conductors are made with vacuum compatible materials
- Leak Rate is less than 1×10^{-9} cc/sec He at one atmosphere differential pressure

Micro-D, Dura-Con Hermetic Compound Connectors, MIL-DTL-83513

Cinch Dura-Con™ Hermetic Compound Connectors offer a high performance hermetic seal designed into the standard Cinch Dura-Con™ Connector. The Cinch Microminiature Dura-Con line of connectors qualified (QPL) to MIL-DTL-83513 is one of the most widely used .050 inch (1.27mm) pitch connectors for military and high-end commercial applications. Dura-Con is ideal where packaging requires a small size and low weight, as well as a highly reliable and rugged connector that has electrical and mechanical integrity under extreme vibration and shock conditions. The heart of the Dura-Con System is the unique wire form pin that provides seven points of contact when mated to the socket.



Available in 9, 15, 21, 25, 31, 37, 51 and 100 count pin/socket configurations, these connectors are tested to MIL-DTL-83513. Can be supplied terminated with insulated wire, custom flex circuits or alternatively with solder cups, or configured to accept wire bonds. Leak rates are typically $\leq 1 \times 10^{-8}$ mbar liter/sec He at one atmosphere differential pressure and have a temperature range of -55°C to +125°C. Applications include electronics in missiles, aircraft, launch vehicles, satellites and computers.

As well as Standard Parts, Cinch provides a wide variety of specials and wired harnesses to industry. Please contact us with your custom or harness needs.

Dura-Con™ Twist Pin Technology

The heart of the Dura-Con system is the twist pin contact. The pairing of a high temperature insulator and Cinch's patented twist pin design, featuring 7 points of contact and the proven ability to operate under extreme conditions of shock and vibration, results in an ideal interconnect solution delivering maximum dependability with a minimal physical footprint.



General Design Specifications

- All interfaces manufactured in accordance with MIL-DTL-83513
- Operating temperature range for Micro-D connectors -55°C to 175°C (-40°F to 347°F)
- Shock 50 G's per MIL-STD-1344, Method 2004, Condition E (EIA-364-27, Condition E)
- Vibration 20 G's per MIL-STD-1344, Method 2005, Condition IV (EIA-364-28, Condition IV)
- Current rating: 3 amps per contact
- Contacts: Pins - Copper alloy, sockets - Copper alloy (machined)

Fibreco, Hermetic expanded beam connectors

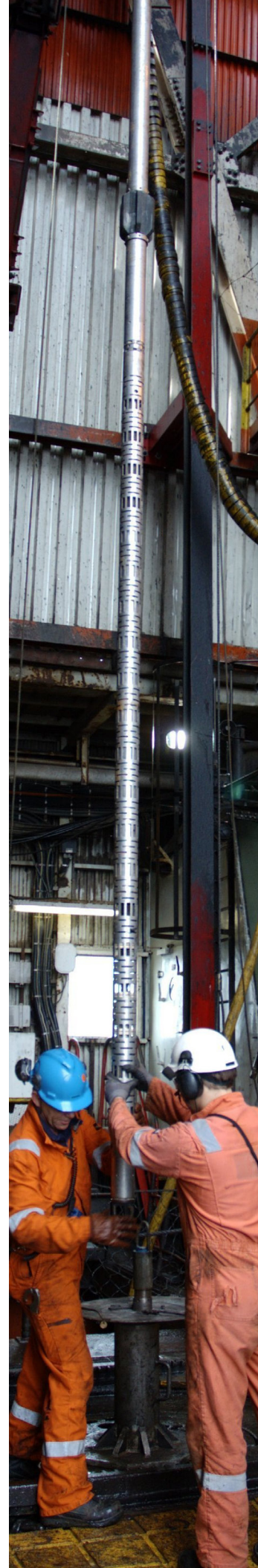
Cinch Fibreco offers an extensive line of multichannel hermaphroditic tactical expanded beam connectors and cable assemblies for military, security, outside broadcast, offshore, mining and other industrial harsh environment applications.



Our product offering includes connectors with multimode or singlemode fiber optic channels, as well as offerings that meet the MIL-DTL-83526/20 & /21 specification and can exceed the specification for customer specific applications. We also manufacture custom cable assemblies from 1m to 5km+ using high quality tactical fiber optic cable and rugged field deployable cable reels.

General Design Specifications

- Supports multimode or singlemode cable, 1 to 16 optical channels
- Insertion loss: multimode <-1.0db / singlemode <-1.5db ; Return loss: >32db
- Aluminum and stainless steel shell options





Proven Excellence

In operation since 1917, Cinch supplies high quality, high performance connectors and cables globally to the Aerospace, Military/Defense, Commercial Transportation, Oil & Gas, High End Computer, and other markets. We provide custom solutions with our creative, hands on engineering and end to end approach.

Our diverse product offerings include: connectors, enclosures and cable assemblies utilizing multiple contact technologies including copper and fiber optics. Our product engineering and development activities employ cutting edge technologies for design and modeling, and our various technologies and expertise enable us to deliver custom solutions and products for our strategic partnerships. We also serve a broad range of commercial markets, largely through our highly efficient distribution network.

We aim to exceed our customer's expectations, and to continually provide innovative solutions to the rapidly changing needs of the markets, and customers, we serve.

Cinch Connectivity Solutions

Cinch Connectivity Solutions
1700 Finley Road
Lombard, IL 60148 USA
+1 800.323.9612
inquiry@cinch.com
cinch.com

