

About Us



Carlisle Interconnect Technologies (CarlisleIT) is one of the world's leading designers and manufacturers of high performance wire and cable including optical fiber. We are also experts in the design and production of harsh environment interconnect products such as contacts, connectors, cable assemblies, installation kits, ARINC trays, racks and shelf assemblies. In addition to manufacturing interconnect products for multiple markets, CarlisleIT has extensive engineering and certification capabilities that range from design to fully installed FAA certified projects with DER, DAR and DMIR personnel on staff.

By the nature of our vertical integration, we can provide interconnect solutions encompassing every facet of design and production. Through a single contact, our customers can solve a variety of product needs including unique cable configurations, custom high frequency connectors, complete cable assemblies of any complexity, specialized complex harnesses, racks and structures. The end-to-end solution is our goal at CarlisleIT – eliminating extra steps while providing quality products to our customers.

Our future plans include a continued focus on the expansion of our product and technical capabilities. We are firmly committed to staying on the forefront of innovative interconnect solutions.

Strategic Direction



Purpose

- » A world class leader in the design and manufacture of high performance interconnect products.

Vision

- » To be known as the premier company for high performance interconnect products by achieving Best-in-Class operating results through the Carlisle Operating System (COS).

Performance Promise

- » Exceeding our customers' expectations by developing innovative products that are delivered on time with superior quality and service.

Strategic and Operational Priorities

- » Pursue strategic acquisitions to expand product lines globally.
- » Invest in organic growth opportunities to expand beyond the markets we serve.
- » Continue to build internal new product development resources to support annual growth targets.
- » Develop and sustain high performance teams and foster collaboration between divisions to achieve operational excellence.

Core Values

- » Integrity, Honesty and Fairness
- » Innovation Leading to Superior Performance
- » Individual Growth and Development Opportunities
- » Positive Winning Attitude

How We Have Grown

Carlisle Interconnect Technologies began its operations in Tarrytown, New York in 1940 as Tensolite Company and started off with a reputation for producing the finest miniature insulated wire and cable in the industry. The company's trademark was coined from the properties built into all Tensolite wire and cable products, which are high tensile strength and compact lightweight performance: Tensile + Lightweight = "Tensolite". The first insulated wire product produced by the company was used to electrically heat the gloves and flight suits of World War II Air Force pilots. Tensolite was an early pioneer in the application of insulation to miniature wire. We were one of the first to apply a unique fluorochemical called PTFE to produce high temperature wire and cable.

In 1959, Tensolite became a part of Carlisle Companies Inc. Carlisle (NYSE: CSL) is a globally diversified company that designs and manufactures a wide variety of products that serve a broad range of niche markets including commercial roofing, energy, agriculture, mining and construction equipment, aerospace, electronics, dining, food delivery and healthcare products. CarlisleIT continues to enjoy the support of Carlisle today, which provides the financial strength and resources to allow us to explore emerging technologies and new opportunities as they come to light.

1940

Founded in Tarrytown, NY

1959

Carlisle acquires Tensolite Company

1998

Vertical integration into High Value Assemblies and RF/ Microwave Assemblies

2000

Added Test & Measurement Assembly Technology

2001

Vertical integration into RF/Microwave Connectors

2007

Added LCR Manufacturing Capability

2008

Vertical integration into IFEC Structures and Assemblies. Changed name from Tensolite to Carlisle Interconnect Technologies

2009

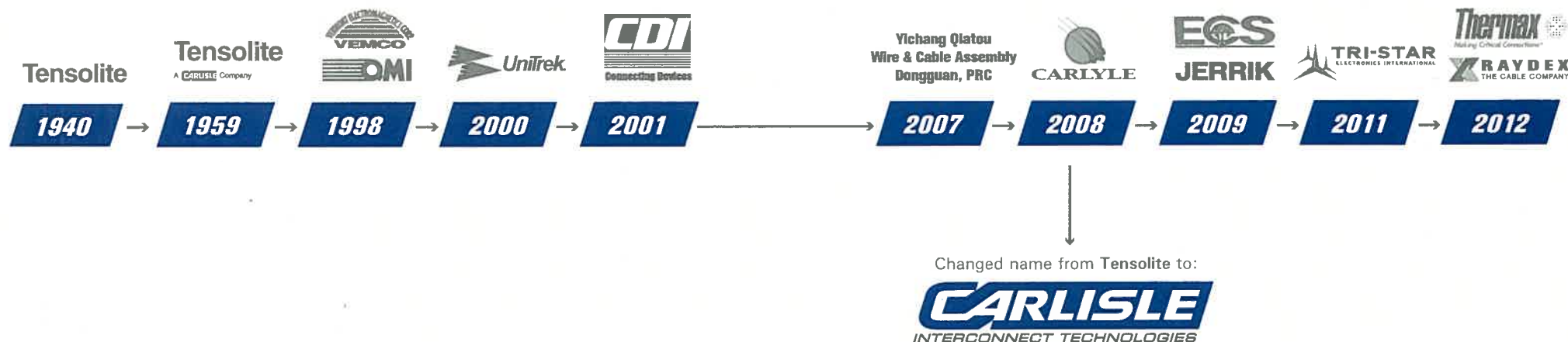
Extended Mil/Defense Connector Capability and further vertical integration into design, certification and build of Aerospace Subsystems

2011

Added precision Machining and Precious Metal Plating. Extends vertical integration into the global Aerospace, Defense and Industrial Markets

2012

Global manufacturing presence extended to Mexico and UK with Expanded High Temperature Wire and Cable product offering for Harsh Environments



Our Global Vision



Markets



COMMERCIAL & MILITARY AEROSPACE

- » Cabin Management
- » EFB - Electronic Flight Bag
- » NextGen Aerospace Connectivity
- » IFEC - In-Flight Entertainment and Connectivity
- » Avionics
- » Aircraft Structures
- » SATCOM



INDUSTRIAL

- » Laser/Industrial Automation
- » Heavy Equipment/Heavy Vehicle
- » Rail Mass Transit
- » Automotive
- » Alternative Energy/Storage
- » Oil and Gas Exploration



SPACE

- » Test Bed
- » Payload
- » Amplifiers
- » High Reliability



DEFENSE ELECTRONICS

- » Radars and Antennas
- » Missile Defense
- » Military Aerospace
- » UAV/UAS
- » C4ISR



TEST & MEASUREMENT

- » Probes and Accessories
- » Oscilloscopes
- » Logic Analyzers
- » Spectrum Analyzers
- » Digital Multimeters



MEDICAL

- » High-Speed Surgical Video
- » High-Performance Surgical Power
- » Single-Use Electrosurgical
- » Diagnostic Patient Monitoring
- » Medical Wire Harnesses
- » EN ISO 13485:2003 Certified

Wire & Cable

General Purpose Airframe Wire

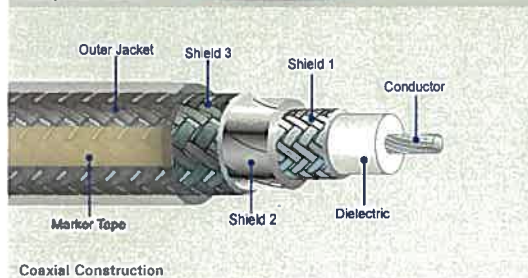
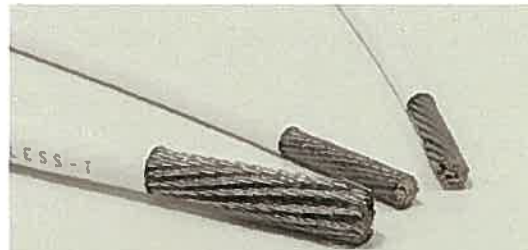
- » BMS 13-60, EN2267 (DR), EN2714 (ML), Mil-DTL-22759 Qualified
- » Standard and Seamless™ tape-wrapped composite insulation
- » Tufflite® – 260° rated general purpose wire
- » Seamless™ General Purpose Wire – improved resistance to scrape abrasion
- » Small diameter, lightweight, arc resistant
- » Temperature rating: -65°C to 260°C
- » Low flame, smoke and toxicity that exceeds requirements of FAR 25.869, Appendix F

Databus Cables

- » BMS 13-72, 80, 83 and S280W502 approved
- » Low flame, smoke and toxicity that exceeds requirements of FAR 25.869, Appendix F
- » Protocols we support: 10/100/1000 Base T Ethernet, Fiber Channel, DVI, IEEE 1394, USB, CAN BUS, Serial ATA, LVDS, HDMI, 1G & 10G, ARINC 429/628/629/664, CEPT-E1, PCI-Express and Display Port 1.1 & 1.2
- » NETflight® Aerospace data bus cables, both tape-wrapped and extruded with expanded PTFE as the dielectric
- » Custom and composite configurations available

Coaxial Cables

- » MaxForm – hand-formable semi-rigid coaxial cable
- » Accuphase® Low Loss DC to 40GHz phase stable microwave cable
- » MIL-C-17 and BMS 13-65 cables
- » CellTec™ high-velocity coaxial cables
- » CellTec™ Parallel-Pair Cable – Compatible with 2mm and 2.54mm backplane systems
- » LTE high-performance coaxial cables (RG replacement)
- » Available in 70%, 75%, 77%, 80%, 82% and 84% VoP
- » Standard sizes from .047" to .282"
- » Low VSWR and insertion loss
- » Low loss coaxial and triaxial cables for aerospace avionics and antenna systems



Mil Spec and Industry Standard Cables

- » Built to these specifications: AS22759, MIL-DTL-81381, MIL-W81822, MIL-DTL-17, M81381, MIL-W-16878, MIL-DTL-25038, WC27500, NEMA HP-3, NEMA HP-4 and Multiple QPL's

Harsh Environment Aerospace Cables

- » Firezone, SWAMP, Engine Cables – ESW, RTS, EJR and EFGLAS
- » Temperature rating: -75°C to 260°C
- » Excellent resistance to hydraulic fuel, petroleum and ester-based oils

Industrial Bulk Cable

- » Cathodic Protection Cables – Used in the protection and control of corrosion on metallic structures. The cables are used to connect sacrificial anodes and are especially suitable for use in deep well installations where nascent chlorine is present
- » UL and CSA certified wire and cable
- » Zyrad™ and Trakrad™ Wire – Cross linked

modified polyolefin insulations provide excellent resistance to abrasion and mechanical damage and have good flame retardant properties. Typical applications include motors, transformers, appliance and rapid transit railway wiring

- » Thermocouple Cables – Specifically designed for accurate measurement and control in a variety of applications in both industrial and avionics, particularly suitable for hazardous environments.
- » Heating Cables – A highly resilient, highly flexible flame retardant insulation and jacket for excellent impact strength in applications, such as underfloor heating
- » Radiation Resistant Cables – Polyimide, PEEK, Zyrad™ and ETFE all offer high radiation resistance properties for use in radiation exposed industries

Tie Cord & Lacing Tape

- » Tie Cords and Lacing Tapes constructed with PTFE coated glass yarn provide superior strength, flex life and temperature resistance for secure installation and fixing in aerospace harness tying



Fiber Optics

Optical Fiber - LITEflight®

- » BMS 13-71, ARINC 801, EN 4641
- » Tight bend radius, kink resistant
- » Temperature ratings: -65°C to 125°C, 150°C or 260°C
- » Standard 900µm, 1.8mm and ruggedized versions available
- » Standard core sizes include 62.5µm, 50µm multi-mode and 9µm single mode
- » Low flame, smoke and toxicity that exceeds requirements of FAR 25.869, Appendix F

Harsh Environment Fiber Optic Assembly

- » Aerospace and military applications
- » Wide range of cable types including fiber jumpers, connectorized assemblies, highly complex breakout assemblies, long length assemblies and fiber harnessing on structures
- » Single-mode and multi-mode applications
- » Multi-Channel Fiber Assemblies
- » Advanced interferometer testing for precise endface geometry control
- » Full qualification test capabilities
- » Compatible Connectors include but are not limited to: LC, ARINC 801, EN 4531, Mil-29504, SC, ST, FC, MT/MTP, 38999

Contacts & Crimp Splices

Contacts

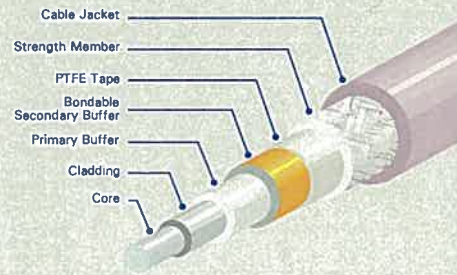
- » Leading provider of High Reliability/Harsh Environment AS39029 contacts including: Signal, Power, Thermocouple, Coaxial, Twinax, Triax, Crimp, Solder Cup, Wire Wrap and custom designs
- » QPL approvals for over 400 different Mil Spec contacts, plus a full line of AECMA, EN3155, BNC, ESC and BAN contacts
- » Custom contacts for aerospace, military, automotive and industrial customers
- » Complete design, manufacture and testing capabilities in-house

Sealed Crimp Splices

- » Our sealed crimp splices are ideal for aerospace and defense applications where small form factor, ease of installation, flexibility and improved sealing characteristics is essential
- » Completely insulated, lightweight and moisture resistant
- » Temperature Range: -55°C to 165°C
- » AS81824/1 QPL Approved
- » Heatless Crimp Splices



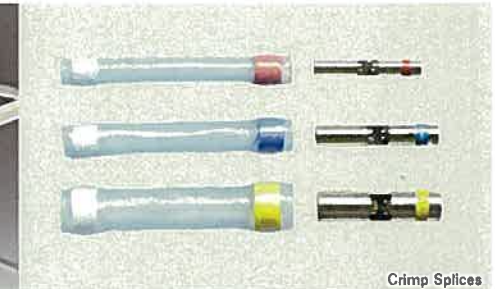
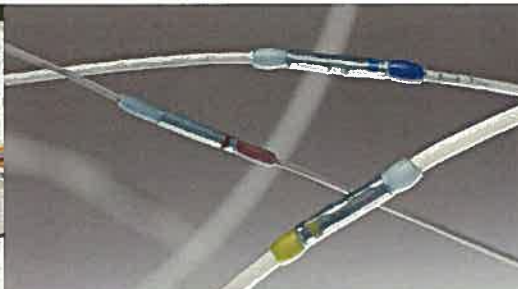
LITEflight® HD



LITEflight® EP



Fiber Optic Assemblies



Crimp Splices



Contacts

Interconnect Products

RF/Microwave

- » A range of RF/Microwave high frequency, high reliability connectors DC to 100GHz are available
- » Microwave Phase Adjusters and line stretchers designed for high performance military communications and commercial applications

Push-On

- » WMP® series are designed to satisfy demand for increased package density and reduced weight in microwave systems and is our smallest push-on connector available
- » SSMP® is a blindmateable system that provides a Micro-Miniature interface that can be used as a smaller and lighter version of the SMP interconnect system utilizing two male connectors (shrouds) and a female adapter (bullet)
- » SMP connectors allow an increase in performance and complexity of designs while simultaneously improving upon the form factor
- » SMP-L™ Connectors add a locking mechanism called Secure-Lok™ to the standard SMP interface
- » TMP® connectors are designed to provide a convenient blindmateable interconnect solution specifically for high power applications
- » XMP™ connectors are specifically for use in RF-excited CO₂ lasers that are capable of delivering between 100W to 600W of power

Filter Connectors

- » Circular Filter Connectors 38999 series I-IV and 24682 series II are constructed using planar filter technology for maximum strength and high performance from low to high frequencies
- » ARINC 600 and 404 Filter Connectors are front removable and have a modular construction
- » TVS and EMI suppression connectors incorporate electromagnetic pulse and lightning protection into the equipment
- » D-Sub, D-Sub right angle and Micro-D 24308 and 83513 are offered with the standard variations in mounting hardware



XMP™ Connectors



SMP and SSMP™ Connectors



Phase Adjuster



SMP-L™ Connectors



WMP® and TMP® Push-on Connectors



Circular Filter



ARINC Filter



TVS Insert



D-Sub Right Angle Filter

Aerospace Connectors

- » Octax™ data bus in-line, M38999, EN4165, ganged and custom connectors
- » Grounding and terminal block connectors
- » IFE power and connectivity connectors
- » Galley connectors
- » Terminal Lugs

Backshells

- » Extremely compact and light weight
- » Standard products for D-Sub and EN4165
- » Circular, ARINC and custom upon request
- » Cast, machined and composite versions available
- » Optimized for termination space and shielding effectiveness

Specialty

- » Complete design and manufacturing capabilities from the design of rubber and plastic components to the machining and die casting of shells and backshells
- » Capability to manufacture specialty connectors and interconnects for unique applications
- » Specialty features may include non-standard shells and layouts, materials, locking mechanisms and spring loaded contacts
- » Can incorporate new technology into an industry standard or Mil Spec housing
- » Overmolding, molding and potting expertise in-house



Terminal and Grounding Block



Octax™ In-line Connectors



Octax™ 38999



Custom Designed Connectors



Compact D-Sub Backshells



Specialty IFE Connectors

Cable Assemblies

Custom Build-to-Print and Designed Aerospace and Mil-Defense Assemblies

- » Complex and lay up harnesses
- » Shielding and overbraiding
- » Laser marking and kitting
- » IFEC seat cables and integrated rack assemblies
- » IFEC shipside wiring
- » High performance RF flex assemblies

High Density RF Interconnect (HDRFI®)

- » High Density DC to 40 GHz RF Interconnect
- » Tested to 2,000 mating cycles
- » Genderless contact eliminates stubbing
- » RF D-Sub, D-Sub mixed signal, RF Circular, Circular mixed signal, ARINC and mezzanine versions available
- » Harsh environment test data available

High Density Shielded Interconnect (HDSI®)

- » Ribbonized coax, differential pair or mixed signal configurations
- » Flexible, low profile, micro-miniature
- » Mass terminated for precision and speed
- » Lower cost and higher frequency than flex printed circuit
- » Full engineering and PCB design services

Medical Assemblies

- » High-performance surgical assemblies
- » Customized interconnect solutions
- » Ruggedized reusable assemblies, optimized for sterilization
- » Ergonomic & lightweight constructions
- » Cost-optimized disposables
- » Custom designed cable and assembly level testing



MD 80 Assembly Harness



HDRFI D-Sub

HDSI



AccuPhase® Assemblies



WorkHorse® Test Assembly



Conformable and Semi-Rigid



Octax® Assembly

Low Loss Coaxial Assemblies (AccuPhase®)

- » DC to 40 GHz
- » Cable sizes from .047" to .282"
- » BMA, SMP, SSMP®, SMK, SMA, 1.85mm, 2.4mm, TNC, N, C, HN, BNC, ARINC 600, ARINC 404 and custom solutions upon request
- » Low loss and low VSWR
- » Phase stable over temperature/flexing

RF/Microwave Assemblies

- » Low Passive Intermodulation Cable Assemblies (Low PIM)
- » Conformable, Semi-Flex®, cable assemblies are hand-formable without the need for bending tools and are 100% shielded with two metal outer conductors for reduced leakage
- » Semi-Rigid assemblies are available in different diameters ranging from .047" to .250" and a wide variety of commercial, QPL and custom connectors
- » WorkHorse® test assemblies designed for use in high volume production environments. The 504 triple shielded cable uses a solid center conductor and has a low loss, excellent phase stability with performance up to 26.5 GHz. The 524 cable has a stranded center conductor and polyurethane jacket for enhanced flexibility with performance capabilities up to 18 GHz

Octax™ High Speed Assemblies

- » Ideal applications include 1Gb to 10Gb Ethernet and High Definition video in aerospace applications and high speed data loading
- » Cables are lighter and more flexible, making them easier to install than conventional cables
- » Blindmateable and scoop-proof
- » 360° shielding on every pair
- » Environmentally sealed contacts
- » Removable crimp contacts
- » Field repairable

Structures & Integrated Components

Trays

- » ARINC 404A – Sizes ¼ to 1 ½ ATR
- » ARINC 600 – Sizes 2 to 12 MCU
- » ABS1699 Airbus Tray
- » Regular and lightweight ARINC 404A and 600 options
- » Lightweight Trays – 20% lighter than industry standard trays
- » Short to extra long lengths
- » Passive or active cooling
- » Available with a wide range of connectors
- » Custom and standard enclosures available
- » Full engineering analysis and qualification testing
- » Boeing, Airbus, Gulfstream, Bombardier, Embraer and Cessna qualified

Racks

- » Aluminum and composite structures for Avionics, IFEC and Mil/Defense systems
- » Complete electrical, data bus and fiber optic cable harness integration
- » Full design and verification testing – airflow, fire, vibration and structural
- » Mounting structures and parts for complete aircraft/vehicle integration
- » IFEC and Military Market Retrofit integrated program management

LRU Enclosures

- » Manufactured with top quality aerospace grade materials and available with additional features for electrostatic discharge (ESD), cooling, board installation and further customization
- » ARINC 404A and ARINC 600 Standards
- » RTCA/DO-160
- » MIL-STD-810
- » Shock, vibration and crash safety testing
- » Structural and finite element analysis

Antenna Mounting

- » Antenna doublers manufactured from top aircraft grade materials and are fully tested to ensure product operational reliability
- » Adapters and brackets
- » Blind Mate antenna connector

Instrument and Control Panels

- » Instrument panels, circuit breakers, annunciators and control boxes to support a variety of systems and applications such as wind shear, smoke detection, PED power and fuel control



GSM Bag Bin Rack



CEC Rack



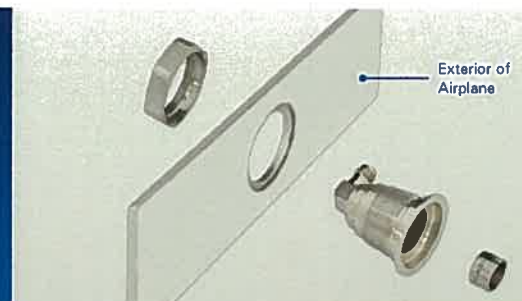
737 IFE Rack



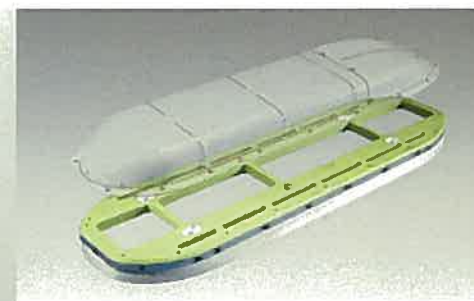
Thumbscrew Hold Downs



Lightweight Tray



Blind Mate Antenna Connector



SATCOM Antenna Doubler



Stand-Offs



LRU Enclosure



Smoke Detector

Services

Aircraft Modification Kits

- » From simple loose-parts kits to fully integrated solutions
- » Mechanical component kits
- » Customizable for various systems and specifications
- » One stop shop for design, manufacturing and packaging service
- » Increase inventory turns while reducing installation complexity
- » Cabling, wire harnessing, electronic and mechanical assemblies, annunciators, adaptors, associated mounting hardware and fittings
- » Build kits to existing STCs, under the many STCs we own, or to your supplied drawings

Fiber Optic Test Kits

- » Complete testing kits tailored to your application
- » Fiber Optic Test Assemblies, Fiber Interface Cleaning, Test and Inspection Equipment
- » Can include fully self-contained testing kits with Insertion Loss Test Kits, Visual Inspection Video Scopes, Optical Time-Domain Reflectors, Optical Backscatter Reflectometers and other test devices

Braiding Products & Solutions

- » From simple hose to complex braiding solutions for harnesses and assemblies
- » Custom bobbin winding to your specification
- » Offer a wide range of braiding materials and full engineering support
- » 24 to 48 hour turn around time
- » SF2600® Braided ceramic sleeving and tape & SF398® Black Nylon sleeving per A-A-59301 are both stocked items
- » Metallic braid materials – Nickel-plated copper, Silver-plated copper and Tin-plated copper per A-A-5955, Stainless steel per QQ-W-423
- » Non-Metallic Braid Materials – Astroquartz®, Ceramic, polyester, "E" Fiberglass, "S" Fiberglass, Graphite, Halar, Para-aramid, Nylon 6.6, PEEK, PTFE and PTFE/glass



Engineering Services

- » Complete electrical and structural design
- » Custom component design
- » Field installation surveying
- » Airflow cooling and analysis
- » Stress analysis
- » Qualification testing
- » Fire detection and containment
- » Regulatory compliance (SFAR 88, DO-160, FAR)
- » Conformity, STC and PMA
- » On-site DER, DAR and DMIR
- » ProE, AutoCAD and CATIA

Certification Services

- » Development of testing data and all requisite reports for certification of product design/prototyping
- » Review and approval of data by FAA-certified structural and equipment DERs
- » Coordination of STC data packages and applications with PMA
- » Ground and flight test procedure
- » Airplane flight manual supplements
- » Work with aerospace regulatory commissions and governing bodies world-wide
- » Apply for STCs and maintain a full compliment of STCs



The work of the CarlisleIT engineering departments is based on the belief that ensuring the airworthiness of our products is just as important as designing and building them. That is why we have gathered together a certification team that includes in-house FAA Designated Engineering Representatives (DERs) to generate the appropriate reports and documentation to ensure that all of our products developed for aviation comply with FAA and aerospace industry airworthiness standards. Our team of certification professionals also take a proactive role in working with regulatory commissions such as EASA (European Aviation Safety Agency), CAAC (Civil Aviation Administration China), JCAB (Japanese Civil Aviation Bureau), CTA (Conando-Geral de Tecnologia Aeroespacial - Brazil) and other aerospace governing bodies around the world.



FlightGear™ 5V Power Cable



EZMount™ Tablet Cradle



FlightGear™ USB Power Port

Electronic Flight Bag

- » Numerous Aircraft STCs
- » Tablet Cradle mounting device is designed for use in commercial, military and corporate aircraft cockpits
- » 5V Power Cables are cost-effective, versatile, robust and deliver efficient charging without the need for bulky converters
- » USB Power Port can be configured for removable power and mounting options, allowing greater flexibility in complex installations and certification efforts

EZMount® Arms

- » Tilt, Pivot, Slider, 3" Arm and 5" Arm options
- » Adaptable to angles and tight constraints with in the flight deck, while being easily adjustable by the flight crew for enhanced operation and safety
- » Fully RTCA/DO-160 FAA-witness tested, substantiated to 20G impulse and 9G sustained crash-loads in all directions
- » Mounting provisions are available in complete STC installation kits, can be purchased as individual PMA components to support owner/operator EFB STC installation projects or installation via local Field Approval efforts



Business Management

- » Manufacturer and distributor of Boeing, Airbus and Mil-Spec wire and cable
- » Manufacturer and distributor of specialty wire, cable, RF coax, connectors, assemblies, trays and other interconnect products
- » Multi-million dollar inventories and stocking locations supporting worldwide service and distribution
- » Same day shipments on stocked items

Inventory Management

- » Real-time inventory visibility
- » Advanced inventory and order fulfillment
- » Build-to-Print, kit design and kitting services
- » Loose-parts kits, mechanical mounting tray kits, integrated kits, antenna adapter kits
- » Full traceability for all materials

Aircraft on Ground (AOG)

- » 24/7 emergency contact
- » 414.421.5300 (local and international customers)
- » 800.327.9473 (within the US)
- » Applicable certification support
- » Available paperwork, test data, CFC, and PMA - 8130-3 tags
- » In-stock core product inventory for immediate delivery



EZMount® Arms

Manufacturing Advantages

Contact Machining and Cold Heading

- » One of two contact manufacturers in the world with cold heading capabilities
- » Cost effective

Selective Plating

- » Highly efficient computerized plating line
- » Pioneer in custom selective plating equipment
- » Lower total cost for customer

Quality Systems

- » All manufacturing locations are AS9100, ISO9001 and UL certified
- » El Segundo, CA and Riverside, CA are certified with AS9100C
- » EN ISO 13485:2003 Certified
- » All manufacturing locations will be ISO 14001 certified by 2015

Molding and Potting

- » CarlisleIT offers a complete line of molding and potting services to support and compliment the manufacturing of our customers' requirements
- » With design, tooling, equipment and testing, CarlisleIT can execute the most cost effective and timely solutions for all sizes and shapes of plastic components, enclosures and strain relief for harsh environment requirements
- » We validate the designs and use 3D systems to generate a concept for customer approval using the Solid Works, Mold Flow and Microwave Studio

5-Axis Machining

- » Efficiently fabricate complicated structural components from 3D models
- » We can design it for you or use customer 3D models



Low Temp Overmolding



Carlisle Operating System



People. Process. Productivity.

Carlisle Operating System

Carlisle Operating System (COS) is our global lean business management and performance system. COS allows us to increase our overall profitability by eliminating waste and improving efficiencies, while reducing the impact on the environment at every level throughout all of CarlisleIT's operations.

- » Lean Sigma business system
- » Promotes safety
- » Employee participation
- » Quality improvement
- » On-time delivery
- » Productivity improvement

