We Silence Your Critical Noise Applications

ITT aerospace products and services are specifically designed to protect our customers’ unique missions for applications on business jet programs. Our extensive knowledge and experience within this industry enables us to provide solutions to noise problems while supplying superior products, services and support. ITT’s innovation approach to partnering with customers’ needs, makes us a superior choice for critical noise applications.

ITT is your partner for noise and vibration isolation systems, APU and ECS noise attenuation and main engine acoustic treatment for aircraft interior and exterior noise control. We offer a proven engineering approach that delivers excellent solutions for our customers. We strive to exceed expectations through high quality, value engineering and innovation in all of our products. Our solutions help to meet your critical noise control requirements.

Capabilities

Engineering Design and Analysis

• Acoustic analysis and design
• CAD modeling (Catia V5 and Solidworks)
• Structural and thermal analysis
• Pressure drop and flow analysis
• Selection of materials
• Prediction of in situ attenuation of isolators
• Weight and cost optimization
• Design for ease of installation and removal

Advanced Manufacturing Techniques

• CNC cutting of prepreg patterns
• Porous, acoustic material processing
• Complex shaped composite layup methods
• Honeycomb sandwich structures
• Composite-elastomeric-metal hybrid assemblies
• Autoclave cure of composites
• Advanced sheet-metal assembly
• Welding (fusional and resistance)
• Elastomeric material processing

Testing Capabilities

• Reverberation room (in-process)
• Acoustic insertion loss and transmission loss
• Pressure drop
• Electrical and impedance
• Environmental (DO-160)
• Thermal
• Pneumatic and hydraulic pressure
• Radiologic inspection
• Ultrasonic inspection of composites
• Mechanical properties of materials
• CMM inspection
• Static load and pressure testing
• Performance dynamics testing
• Fatigue life requirements testing
• 4-Pole test method of isolators

Materials

Acoustic
• Acousti-Flo®
• Feltmetal
• Perforated metal
• Absorptive foams and fiberglass sound barrier materials

Elastomeric
• Silicone
• Fluorosilicone
• Neoprene
• Nitrile
• Viton
• Buna
• Natural rubber
• Enitemp IV™

Composite
• Epoxy
• Phenolic
• Polyester
• Polyimide
• Graphite
• Bismaleimide

Carrier
• Fiberglass
• Carbon fiber
• Nylon
• Nomex
• Dacron
• Kevlar

Metals
• Superalloys
• Aluminum
• Stainless Steel
• Titanium

Websites

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ITT Aerospace Platforms/Products
We are Designed for Business Jet Applications

ITT Aerospace Platforms/Products
Product Capabilities

• APU inlet plenums
• ECS silencers
• Main engine acoustic treatment
• Acoustic panels

APU Inlet and Exhaust Programs

• Boeing 787
• Bombardier CSeries, Q400, Lear 85
• Comac ARJ 21
• Embraer 135, 145, 170, 175, 190, 195
• Embraer 175 E2, 190 E2, 195 E2
• Mitsubishi MRJ

ECS Programs

• Bombardier Global 7000/8000
• Embraer Legacy 450/500
• Gulfstream G500/G600
• Hawker 800XP , 850XP , 950XP , 4000
• HondaJet
We Silence Your Critical Noise Applications

ITT aerospace product lines are specifically designed to provide our customers with unique solutions for applications on business jet programs. Our extensive knowledge and experience within this industry enables us to provide tailored noise control products while maintaining superior products, services and support. ITT’s innovative approach and partnership with customers needs, makes us a supplier of choice for critical noise control challenges.

ITT is your partner for noise and vibration isolation systems, APU and ECS silencers, insulated ducting and main engine acoustic treatment for aircraft interior and exterior noise control. We offer a proven engineering approach, together with over 40 years of experience, to design and develop a solution to meet your critical noise control needs.

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Capabilities

Engineered Design and Analysis
- Acoustic analysis and design
- CAD modeling (Catia V5 and Solidworks)
- Structural and thermal analysis
- Pressure drop and flow analysis
- Selection of materials
- Prediction of in-situ attenuation of isolators
- Weight and cost optimization
- Design for ease of installation and removal

Advanced Manufacturing Techniques
- CNC cutting of prepreg patterns
- Porous, acoustic material processing
- Complex shaped composite layup methods
- Honeycomb sandwich structures
- Composite-elastomeric-metal hybrid assemblies
- Autoclave cure of composites
- Advanced sheet-metal assembly
- Welding (fusion and resistance)
- Elastomeric material processing

Testing Capabilities
- Reverberation room (in-process)
- Acoustic insertion loss and transmission loss
- Pressure drop
- Electrical and impedance
- Environmental (DO-160)
- Thermal
- Pneumatic and hydraulic pressure
- Radiologic inspection
- Ultrasonic inspection of composites
- Mechanical properties of materials
- CMM inspection
- Static load and pressure testing
- Performance dynamics testing
- Fatigue life requirements testing
- 4-Pole test method of isolators

Materials
- Acoustic
- Acousti-Flo®
- Feltmetal
- Perforated metal
- Absorptive foams and fiberglass sound barrier materials
- Elastomeric
- Silicone
- Fluorosilicone
- Neoprene
- Nitrile
- Viton
- Buna
- Natural rubber
- Enitemp IV™
- Composite
- Epoxy
- Phenolic
- Polyester
- Polyimide
- Graphite
- Bismaleimide
- Carrier
- fiberglass
- Carbon fiber
- Nylon
- Nomex
- Dacron
- Kevlar
- Metals
- Superalloys
- Aluminum
- Stainless Steel
- Titanium

Innovative Products for Business Jet Applications

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Capabilities

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- Acoustic analysis and design
- CAD modeling (Catia V5 and Solidworks)
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- Static load and pressure testing
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- 4-Pole test method of isolators

Materials
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- Feltmetal
- Perforated metal
- Absorptive foams and fiberglass sound barrier materials
- Elastomeric
- Silicone
- Fluorosilicone
- Neoprene
- Nitrile
- Viton
- Buna
- Natural rubber
- Enitemp IV™
- Composite
- Epoxy
- Phenolic
- Polyester
- Polyimide
- Graphite
- Bismaleimide
- Carrier
- fiberglass
- Carbon fiber
- Nylon
- Nomex
- Dacron
- Kevlar
- Metals
- Superalloys
- Aluminum
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We Silence Your Critical Noise Applications

ITT aerospace product lines are continually expanding to provide our customers with unique solutions for applications on business jet programs. Our extensive knowledge and experience within this industry enables us to co-produce integrated noise solutions while maintaining superior products, services and support. ITT is committed to approach partnerships with customer needs, making us a supplier of choice for critical noise electrical challenges.

ITT Endorsements/Products

Product Capabilities

• Elastomeric Rod Ends
• Elastomeric Panel Isolators
• APU Elastomeric Isolators
• Strut Integrated Isolation Systems
• Elastomeric Monument Mounts
• Wire Rope Isolators
• Compact Wire Rope Isolators

APU Inlet and Exhaust Programs

• Embraer Legacy 450/500

Noise attenuation Programs

• Bombardier Global 7000/8000
• Dassault Falcon 7X
• Embraer Legacy 450/500
• Embraer Phenom 300
• Gulfstream G650/G280
• HondaJet

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ITT Endorsements/Products

Product Capabilities

• Elastomeric Rod Ends
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APU Inlet and Exhaust Programs

• Embraer Legacy 450/500

Noise attenuation Programs

• Bombardier Global 7000/8000
• Dassault Falcon 7X
• Embraer Legacy 450/500
• Embraer Phenom 300
• Gulfstream G650/G280
• HondaJet
GROWING WITH ITT AEROSPACE PRODUCTS

Elastomeric & Wire Rope Technologies

**Strut Integrated Isolator**
- ITT Enidine has developed a compact isolator solution for strut mounted equipment. The Strut Integrated Isolator offers a compact design, providing noise/vibration attenuation compared to industry "standard" mounts.
- Designed to accommodate a range of mounting configurations and load conditions, ITT Enidine now offers a line of isolators to provide optimized noise/vibration attenuation.
- Compared to other isolators, the Strut Integrated Isolator offers a small footprint, adjustable mounting in two directions, a high load range of 25 - 100 lbs. and an included color coded adjustment and mounting tool.
- This new isolator boasts a small footprint, adjustable mounting in two directions, a high load range of 25 - 100 lbs. and an included color coded adjustment and mounting tool.

**Elastomeric Panel Isolators**
- The ITT Enidine Panel Isolator allows for noise free mounting of various components in multiple configurations and locations. This new isolator is an excellent choice for all strut mounted equipment.
- Integrated Isolator is an excellent choice for all strut mounted equipment.
- With its inherent performance, weight, and design flexibility advantages, the Strut Integrated Isolator locates an elastomeric isolator directly into the strut, eliminating the need for a large multi-axis isolator. This solution offers performance, weight, and design flexibility advantages over traditional mounting solutions.
- The main engine noise control products include the exhaust "hush kit", bypass duct acoustic liners and inlet acoustic panels. ITT has the design and manufacturing capabilities uniquely positioned to provide world-class acoustics and aerodynamics engineering to meet specific noise and performance requirements over 40 years. We specialize in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines.

**Monument Noise Isolators**
- The ITT Enidine Monument Noise Isolator allows for noise free mounting of various components in multiple configurations and locations. This new isolator is an excellent choice for all strut mounted equipment.
- Designed to accommodate a range of mounting configurations and load conditions, ITT Enidine now offers a line of isolators to provide optimized noise/vibration attenuation.
- Compared to other isolators, the Strut Integrated Isolator offers a small footprint, adjustable mounting in two directions, a high load range of 25 - 100 lbs. and an included color coded adjustment and mounting tool.

**Apu Silencers**
- ITT typically provides an APU noise control kit, normally preferred by a customer, or an alternative design. This typically consists of an APU inlet and exhaust silencer that often includes an adjacent inlet duct, cooling air duct and eductor. Our APU Silencers are designed specifically to reduce noise and support complex shapes and efficient aerodynamic designs.
- Specific designs may include a compact design with an adjacent inlet duct and cooling air duct.
- Noise Control Technologies

**Silencers for ECS, APU and Main Engines**
- ITT has been designing and manufacturing a wide range of noise control products for over 40 years. We specialize in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines. ITT Controls Systems is renowned globally to provide solutions that meet the needs for applications with low noise, high reliability and durability.
- ITT typically provides an APU noise control kit, normally preferred by a customer, or an alternative design. This typically consists of an APU inlet and exhaust silencer that often includes an adjacent inlet duct, cooling air duct and eductor. Our APU Silencers are designed specifically to reduce noise and support complex shapes and efficient aerodynamic designs.
- APU Silencers are specifically designed to meet the needs for applications with low noise, high reliability and durability.
- Main Engine Noise Control
- The main engine noise control products includes the Exhaust Twin 105, SAP and TACSN systems which are tailored to specific engine design and mounting requirements to provide the maximum reduction in noise level of a main engine.
GROWING WITH ITT AEROSPACE PRODUCTS

Elastomeric & Wire Rope Technologies

Strut Integrated Isolator

ITT has developed a compact isolator solution for strut mounted equipment. The Strut Integrated Isolator is a patented design that integrates an elastomeric isolator directly into the strut, eliminating the need for a large isolation insert. The isolator offers performance, weight, and design advantages over traditional mounting and isolation systems. The main component in the isolator is the ITT Enidine Biscuit Interlayer. This layer incorporates a proprietary, a new generation elastomeric material that has been extensively tested and validated in laboratory environments. The Biscuit Interlayer provides low frequency performance, allowing it to be installed without requiring an isolation plate. The main component of the isolator is the ITT Enidine Biscuit Interlayer, which incorporates a proprietary material that has been extensively tested and validated in laboratory environments. The Biscuit Interlayer provides low frequency performance, allowing it to be installed without requiring an isolation plate.

Elastic Panel Isolators

ITT Enidine Panel Isolators can be used for sidewall and ceiling panels, as well as for mounting IFE and other equipment. These isolators offer improved noise control compared to industry “standard” mounts. Available in the same envelope size, multiple elastomer stiffnesses, interchangeable with existing isolators, noise attenuation performance, improved composite frame, fail-safe low-profile design, and exceptional noise attenuation performance.

Monument Noise Isolators

The ITT Enidine Monument Noise Isolator allows for noise free mounting of various components in multiple configurations and locations. It is uniquely positioned to provide the following benefits: easy of installation and removal, low cost, low weight, high reliability, high acoustic performance, low and high temperature solutions, rigid and flexible ECS silencers, and acoustic analysis and custom designs.

ECS Silencers

ITT’s silencers are all designed and manufactured to the highest standards. The ECS silencers are typically designed to a customer provided noise spectrum and often incorporate unique design features to optimize their acoustic performance. Specifically, the ECS silencers perform the following functions:

- Reduce noise in aircraft bleed and trim air systems.
- Improve working conditions for ground personnel.
- Provide exhaust path for APU (exhaust silencer).
- Provide intake air for APU (inlet silencer).
- Improve passenger comfort.
- Provide exhaust conduit with ECS noise load requirements.
- Provide in-duct noise treatment.
- Improve noise performance.
- Provide efficient conditions for ground personnel.

Main Engine Noise Control

ITT has been designing and manufacturing a wide range of noise reduction products for over 40 years. We specialize in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines. ITT Enidine Controls is uniquely positioned to provide solutions that are tailored to suit the specific needs of each project. Our products include noise reduction systems and design features such as:

- Honeycomb acoustic absorption.
- Acoustic liners and inlet acoustic panels.
- Acoustic analysis and custom designs.
- High reliability.
- High acoustic performance.
- Low cost.
- Low weight.
- Easy of installation and removal.
- Fast delivery.

Business Jet Solutions
ITT Aerospace Controls specializes in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines. ITT has been designing and manufacturing a wide range of noise reduction products for over 40 years. We specialize in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines. ITT Aerospace Controls is known for its design flexibility, capability to provide world-class products that are noise-attenuating, and ability to deliver high reliability and durability.

Main Engine Noise Control

ITT typically provides an APU noise control kit, normally preferred by a customer, or an individual noise control component. This kit, typically, consists of an APU inlet and exhaust silencer, bypass duct acoustic liners and inlet acoustic panels. ITT has the design and manufacturing capabilities to provide the following functions:

- Reduce noise at engine bleed and trim air
- Improve working conditions for ground personnel
- Reduce noise inside the aircraft
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)

Design Features

- Low weight
- Ease of installation and removal
- Low cost
- High reliability and durability
- High acoustic performance

ECS Silencers

ITT typically provides a standard silencer, normally preferred by the customer, or an individual noise control component. The standard silencer, typically, consists of a silencer that often includes an adjacent inlet duct, cooling air duct and eductor. Our APU silencers feature the following functions:

- Helmholtz resonator chamber
- Impedance matching
- Folded cavity
- ¼ wavelength cavity

Noise attenuation techniques

- In-house FEA acoustic analysis software
- Proprietary acoustic treatment materials
- Low and high temperature solutions
- Rigid and flexible ECS silencers
- Acoustic analysis and custom designs

APU Silencers

ITT provides a full range of ECS and APU silencers for various aircraft configurations. Our APU silencers are designed to meet the needs of the customer and provide the following features:

- Improve working conditions for ground personnel
- Reduce noise at engine bleed and trim air
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)

Main Engine Noise Control

The engine noise control products feature the advanced Thrust 300™, SuperFlex™ and Acoustic Liner 300™. These products are designed to meet the stringent noise and vibration requirements and to provide the highest attenuation in reducing noise of a main engine.

- Thrust 300™: Provides superior noise reduction for main engines
- SuperFlex™: Offers superior noise reduction for main engines
- Acoustic Liner 300™: Provides superior noise reduction for main engines

Design Features

- Reduce noise at engine bleed and trim air
- Improve working conditions for ground personnel
- Reduce noise inside the aircraft
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)

ITT Aerospace Controls offers a full line of noise control products that meet the needs of the customer and provide the following features:

- Improve working conditions for ground personnel
- Reduce noise inside the aircraft
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)

Main Engine Noise Control

ITT's noise control products feature the advanced Thrust 300™, SuperFlex™ and Acoustic Liner 300™. These products are designed to meet the stringent noise and vibration requirements and to provide the highest attenuation in reducing noise of a main engine.

- Thrust 300™: Provides superior noise reduction for main engines
- SuperFlex™: Offers superior noise reduction for main engines
- Acoustic Liner 300™: Provides superior noise reduction for main engines

Design Features

- Reduce noise at engine bleed and trim air
- Improve working conditions for ground personnel
- Reduce noise inside the aircraft
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)

ITT Aerospace Controls offers a full line of noise control products that meet the needs of the customer and provide the following features:

- Improve working conditions for ground personnel
- Reduce noise inside the aircraft
- Enable aircraft compliance with ICAO noise level requirements
- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)
**GROWING WITH ITT AEROSPACE PRODUCTS**

**Elastomeric Panel Isolators**

ITT Enidine now offers a line of isolators to provide optimized noise/vibration attenuation for a variety of aircraft interior applications. These isolators provide significantly better noise attenuation compared to industry “standard” mounts. Designed to accommodate a range of mounting configurations and load conditions, ITT Enidine isolators can be repeatedly adjusted to fine-tune performance.

- Available in the same envelope size
- Multiple elastomer stiffnesses
- Interchangeable with existing isolators
- Noise attenuation performance
- Improved composite frame
- Fail-safe low-profile design

**Strut Integrated Isolators**

ITT Enidine has developed a compact isolator solution for strut mounted equipment. The Strut Integrated Isolator locates an elastomeric isolator directly into the strut, eliminating the need for a large enclosure. This solution offers performance, weight, and design advantages over traditional methods. This innovative design reduces the need for aircraft modification, allowing a flat-pack design.

- Available in multiple elastomeric, steel, and composite configurations
- Folded cavity, ¼ wavelength cavity, and Helmholtz resonator chamber noise attenuation techniques
- Over 40 years of design and manufacturing experience
- In-house FEA acoustic analysis software
- Proprietary acoustic treatment materials
- Low and high-temperature solutions
- Rigid and flexible ECS silencers
- Acoustic analysis and custom designs

**ECS Silencers**

ITT offers an extensive line of acoustic silencers designed to provide a quiet working environment. ECS silencers are designed to reduce engine and cabin noise, supporting complex shapes and efficient aerodynamic designs.

- Helmholtz resonator chamber
- Impedance matching
- Folded cavity
- ¼ wavelength cavity
- Noise attenuation techniques
- In-house FEA acoustic analysis software
- Proprietary acoustic treatment materials
- Low and high temperature solutions
- Rigid and flexible ECS silencers
- Acoustic analysis and custom designs

**APU Silencers**

ITT APU silencers have been designed to provide quiet working environments and to provide exhaust path for APU (exhaust silencer) and provide intake air for APU (inlet silencer). APU silencers are designed to comply with noise level requirements.

- Provide exhaust path for APU (exhaust silencer)
- Provide intake air for APU (inlet silencer)
- Improve passenger comfort
- Provide working conditions for ground personnel

**Monument Noise Isolators**

The ITT Enidine Monument Noise Isolator allows for panel mount isolation of various equipment configurations. Adapted from an advanced inboard-trim motor, a high load range of 25 - 100 lbs, and an adjustable mounting in two directions, the Monument Noise Isolator is ideal for mounting ITT APU, ECS, Environmental Control Systems (ECS), and main engines. ITT Enidine isolators are designed to provide optimized noise/vibration attenuation for a variety of aircraft interior applications.

- Designed to accommodate a range of mounting configurations and load conditions
- Available in multiple elastomeric, steel, and composite configurations
- Folded cavity, ¼ wavelength cavity, and Helmholtz resonator chamber noise attenuation techniques
- Over 40 years of design and manufacturing experience
- In-house FEA acoustic analysis software
- Proprietary acoustic treatment materials
- Low and high-temperature solutions
- Rigid and flexible ECS silencers
- Acoustic analysis and custom designs

**Main Engine Noise Control**

ITT has been designing and manufacturing a wide range of noise reduction products for over 40 years. We specialize in products that attenuate noise of Auxiliary Power Units (APU), Environmental Control Systems (ECS) and main engines. ITT Enidine isolators are designed to provide optimized noise/vibration attenuation for a variety of aircraft interior applications. ITT Enidine has the design and manufacturing capabilities to provide the following products to reduce noise of a main engine:

- Acoustic liners and inlet acoustic panels
- Exhaust “hush kit”, bypass duct silencers, and inlet duct silencers
- APU inlet and exhaust silencers

**Silencers for ECS, APU and Main Engines**

- Provide acoustic sound isolation
- Improve noise/vibration attenuation
- Provide reduced noise and support complex shapes and efficient aerodynamic designs

**IFE and other equipment.**
We Silence Your Critical Noise Applications

ITT aerospace product lines are specifically designed to provide our customers with unique solutions for applications on business jet programs. Our extensive knowledge and experience within this industry enables us to provide innovative noise attenuation solutions using superior products, services and support. ITT’s innovative approach, in partnership with customers’ needs, results in superior noise control services.

ITT Aerospace Platforms/Products

Product Capabilities
• Elastomeric Rod Ends
• Elastomeric Panel Isolators
• APU Elastomeric Isolators
• Strut Integrated Isolation Systems
• Elastomeric Monument Mounts
• Wire Rope Isolators
• Compact Wire Rope Isolators

APU Inlet and Exhaust Programs
• Embraer Legacy 450/500
• Bombardier Global 7000/8000
• Dassault Falcon 7X
• Embraer Legacy 450/500
• Embraer Phenom 300
• Gulfstream G650/G280
• HondaJet

ITT is your partner for noise and vibration isolation systems, ECS and APU silencers, insulated ducting and main-engine acoustic treated for aircraft exhaust and exterior noise control. We offer a proven engineering approach, tailored to address your specific requirements, that results in a state-of-the-art noise attenuation solution to meet your critical noise control needs.

Engineering Design and Analysis
• Acoustic analysis and design
• CAD modeling (Catia V5 and Solidworks)
• Structural and thermal analysis
• Pressure drop and flow analysis
• Selection of materials
• Prediction of in-situ attenuation of isolators
• Weight and cost optimization
• Design for ease of installation and removal

Advanced Manufacturing Techniques
• CNC cutting of prepreg patterns
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• Ultrasonic inspection of composites
• Mechanical properties of materials
• CMM inspection
• Static load and pressure testing
• Performance dynamics testing
• Fatigue life requirements testing
• 4-Pole test method of isolators

Materials
• Acoustic
• Acousti-Flo®
• Feltmetal
• Perforated metal
• Absorptive foams and fiberglass sound barrier materials
• Elastomeric
• Silicone
• Fluorosilicone
• Neoprene
• Nitrile
• Viton
• Buna
• Natural rubber
• Enitemp IV™
• Composite
• Epoxy
• Phenolic
• Polyester
• Polyimide
• Graphite
• Bismaleimide
• Carrier
• Fiberglass
• Carbon fiber
• Nylon
• Nomex
• Dacron
• Kevlar
• Metals
• Superalloys
• Aluminum
• Stainless Steel
• Titanium

ITT Aerospace is an AS9100 Rev C and ISO9001:2008 registered and certified aerospace manufacturer. Our material processing and assembly processes meet or exceed NASA STANAG 4601/4602/AAS standards.

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