

# Aerospace Products and Services

ITT aerospace product lines are continually expanding to provide our customers with unique solutions for applications on military and commercial rotorcraft programs. Our extensive knowledge and experience within these industries enable us to provide our customers with superior analysis, products, services and support. Our teaming and partnership approach to the customer's needs sets us apart from the competition.

With the recent addition of our rotorcraft technologies and components to our already extensive product portfolio, we are well postioned to offer the highest level of service and support that you need to keep your rotorcraft up and running with the latest advancements.

Enidine 7 Centre Drive Orchard Park, New York 14127 Phone: 716-662-1900 Fax: 716-667-1385 www.enidine.com

Aerospace Controls

28150 Industry Drive Valencia, CA 91355 Phone: 661-295-4000 Fax: 661-294-1750 Email: sales.aerospace@itt.com www.ittaerospace.com

ITT Cannon 56 Technology Drive Irvine, CA 92618 Phone: +1.800.854.3028 www.ittcannon.com

**Application Solutions for** Today's Rotorcraft **Industry** 

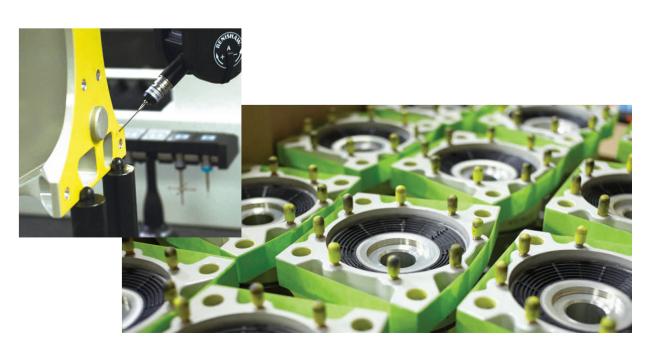


# **Worldwide Presence**

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for growing end-markets in industrial, aerospace and transportation. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life.



With locations around the world, we provide highly engineered products to the global aerospace industry.



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# GROWING WITH ITT AEROSPACE PRODUCTS

## • Fuel Control Valves and Actuators **HCL Bearings & Dampers** • Engine Fuel, Oil, Filter, Pump - Pressure, • Transmission Vibration Isolation Systems Temperature and Flow Switches • 5015 Firewall Connectors: Power Transmission Vibration and Noise Advanced Particle Damping KJA Series III: Signal & Power Transmission • Hydraulic System Motor Operated Valves • Hydraulic Pressure & Temperature Switches • Structureborne Noise Attenuation COCKPIT, AVIONICS & FLIGHT CONTROL • FOHA/PHD: Multi-System Data Control • BKAD Rack & Panel: Power & Signal Processing KPT/KPSE Series I: Signal Transmission • Micro Connectors & Cable Assembly: I/O for IFF ECS Valves & Actuators Receivers & Transponders • Hermetics: Severe environment & pressurized I/O Pressure & Temperature Switches Space & Specials Connector & Cable Assembly: Power & Signal Transmission MKJ Mini-Circular: Data, Signal & Power Transmission for Imaging Systems Hydraulic Control Dampers LANDING GEAR APU Isolation Elastomeric Noise Attenuation Valves & Pressure Switches EM Actuators



### High Capacity Laminated (HCL) Bearings

ITT Enidine's high-capacity laminated elastomeric bearings are needed in transmissions and rotor systems. These devices are used to support loads in-flight critical assemblies as well as transmit loads and motion to the blades of the helicopter. These HCL bearings provide a high stiffness in one or combined directions to take loads, while lowering stiffness in other directions allowing for motion.

- Reduce in-flight vibration Stiffness and damping are engineered for each application
- Longer life than traditional bearings Resistant to dust, debris and fluids
- Improve the reliability of other aircraft systems
- Easy inspection Visual inspection indicates approaching end of life
- Utilized for flapping and blade retention on the tail rotor
- Reduced maintenance Require no lubrication



# Hydraulic Control Dampers

ITT Enidine is globally recognized as the preferred source for energy absorption and hydraulic motion control products. Our experience designing, developing and manufacturing an array of products allows us to utilize that experience into a variety of markets. We have over 5 decades of experience with military and commercial gerospace shock and vibration isolation in the hydraulic market. Many standard designs are capable of >1 million operating cycles without the loss of fluid or performance due to sealing technology and experience.

- Mitigate bio-mechanical feedback of helicopter collective controls
- Provide pilots with precise resistance for controls
- Prevents jamming or high-stiffness in pilot controls with fail-safe design
- Hydraulic dampers are custom designed per application requirements for opening or closing actuation or rate control of cowls and doors



#### Harsh Environment Linear Actuator

The Harsh Environment Linear Actuator is ITT Aerospace Controls' newest linear actuator design. The linear actuator incorporates a two piece machined housing to control sealing surfaces while providing a high strength structure which limits fluid ingress. All sealing surfaces were improved to provide easy assembly and the highest level of protection from Harsh elements. Additionally, the exterior surfaces are finished with a Military Specification Anodic Coating.

- Meets MIL-A-8064 requirements
- Integral electromechanical motor brake optional
- Two position or modular positioning



- PMDC motor typical, Brushless optional
- ACME or Ball Screw drive
- Force limiting capability
- Non-jamming mechanical stops

- Switched or continuous position feedback



### Fan/Duct Heater Assemblies

For spot heating requirements in cabin equipment or ECS bay, ITT supplies a family of plug and play integral Fan/Duct air to air heaters. By utilizing our patent pending FanFlow Adapter, the fan assembly can be mounted much closer to the heater without degrading the heater performance. The heater is derived from ITT's ECS Heater line with over 40 years of installation history and is DO-160 Qualified, Lightweight and Vibration/Shock resistant, available in 3", 3.5" and 4" diameters and various total wattages.

- This is a patented ITTAC Plug and Play Fan/Duct Heater.
- Available with up to 2000 Watts
- 115/200 3 phase or 28 VDC power
- Compatible with other ITTAC components for additional customer satisfaction
- Design based on over 15,000 installed duct heaters on Boeing Aircraft which meets required weight restriction and also low pressure drop & increased flow requirements



#### **ARINC BKAD Rack & Panel Connectors**

Designed per ARINC 600 guidelines, ITT Cannon's BKAD series connectors represent the industry standard for new avionic systems that support the air transportation market. These ruggedized, harsh environment interconnect solutions are available in 3 and 6 gang configurations and can accommodate up to 800 low insertion force contacts. Our low insertion force contacts are also interchangeable with the contacts used in ITT Cannon's DPX series and permit retrofit of existing avionic rack systems in the cockpit and

- Rear release/rear removable size 12, 16, 20, 22 crimp contacts
- Low insertion force contacts
- Both environmental and non- environmental versions
- Polarizing posts that are removable from the mating face
- Field replaceable inserts



# **MIL-DTL-5015 Firewall Connectors**

ITT Cannon's Firewall connectors are designed to meet the requirements of MIL-DTL-5015 class K and allow electrical circuits to penetrate the engine firewall of the aircraft while still maintaining the integrity of the flame barrier requirements of the aircraft firewall. These robust interconnect solutions provide protection against high temperatures, emergency fire-retardant conditions, moisture and atmospheric changes, and are resistant to fuels, cleaning agents, coolants and hydraulic fluids.

- Temperature rating: +204°C (+392°F) for more than 1000 hours
- Complete moisture sealing against pressure differential to 15 psi before and after exposure to +204°C
- Rugged metal clip retention system assuring positive content retention
- Self-locking coupling mechanism