IGNITION

PROMOTING COMBAT READINESS.
SUPPORTING COMMERCIAL AIRCRAFT ECONOMICS.

We start aero-engines without fail and without delay.

We promote combat readiness in elite military jets such as the Eurofighter Typhoon, Mirage and Rafale and support the economic operation of commercial and general aviation aircraft from numerous Eurocopter rotorcraft to the Gulfstream G650, soon to become the fastest civil aircraft.

But an effective ignition system must not only be capable of starting an aero-engine. After lighting the engine, it becomes a passenger that must withstand environmental extremes of flame, temperature cycling and vibration, remaining operational throughout a journey if in-flight ignition is needed and ready to perform for the next flight.

AEROSPACE
CAPABILITIES

Wheels, brakes and brake control
Thermal management and fluid control
Ice protection
Smart electronic control
Fire protection and control
Ignition
Health monitoring
Sensing and data acquisition
Flight test
Fluid gauging
Air data measurement
Flight displays
Polymer solutions
Fuel containment
Countermeasure deployment
Automatic ammunition-handling

MEGGITT
smart engineering for extreme environments

EXTREME IGNITION

We have been igniting fuel since the beginning of commercial internal combustion engine history. That's when we invented and manufactured the spark plug for the automotive industry.

Today, we are igniting engines in the most challenging applications there are – on military jets operating in combat conditions to the limit of their capabilities for extended periods. These machines require ignition systems that can withstand temperatures up to around 1000ºC, sparking continuously if necessary to provide additional engine thrust or reigniting the engine after extreme deceleration. At high altitude, our systems must perform in extreme cold (-75ºC) and at very low pressures (-75 mbar). To the challenges faced by spacecraft, where reliability, power consumption, volume and weight are critical considerations amidst massive pressure differentials and low temperatures, we provide failsafe low voltage solutions that can function at one microPascal.

MATERIAL DESIGN

The key to our capability resides in Meggitt's trademark extreme environment engineering – and material science.

Our ignition systems are known for the material design between the electrodes and the tip of the igniter. Our patented pellet of ceramic material allows sparking at a lower voltage and reduces the requirement for insulation at high temperatures. System weight is lower and the simplicity of the equipment improves reliability. This material also allows effective sparking under high pressure in the engine, sustaining combustion in unstable flame conditions.

CHANGING THE PHYSICS OF COMBUSTION

Our R & D goals focus on materials' improvement and optimising energy levels to the size of a given engine – too much energy in the spark burns away the electrodes, requiring heavier exciters and too little energy fails to ignite the fuel. So while Meggitt's current ignition systems offer a highly competitive mix of continuous ignition and high thrust ratios at low fuel consumption, we are collaborating with industry partners to develop laser technology, a revolution in ignition that will change the physics of combustion.

Laser ignition systems enable engine manufacturers to design leaner combustion chambers and freely position sparks for optimum combustion – when the fuel jet has become a spray, for example, and has been optimally mixed with air. They offer reliability in a range of weathers and conditions, consume less fuel and, as ignition is fast, send less unburned fuel outside the engine, creating less pollution.

Whatever the application, all our efforts are dedicated to adding value to ignition systems, providing greater combustion control and the ability to provide information to engine control units with smart, active ignition packages.

KEY PRODUCTS

Meggitt provides a full range of ignition systems, from high voltage (air-gap) to low voltage (surface discharge/high energy) types with associated leads and high energy and low and high tension exciters.

Whatever the mechanical geometry, customers can expect low weight, low volume, low power and high reliability as standard.

WHO WE WORK WITH

- Avio
- Microturbo
- Rolls-Royce
- Snecma
- Turbomeca

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IGNITION
Just one of the Meggitt capabilities covered in Meggitt in a Minute, the group's new e-tour.
See also Data Acquisition and Ignition

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