Global company in Aircraft Systems and Equipment
- $9 billion sales
- Landing Gear
- Wheels & Brakes
- Evacuation systems
- Fuel control and management systems
- Ice detection and removal

Actuation Systems
- Flight Control Systems and Landing Gear
- $950M business 45% UK, 45% France, 10% USA
- Formerly Lucas Aerospace
Flight Controls: flaps, slats and spoilers
Mechanisms to open doors in the fuselage, lower or raise the landing gear and provide steering to the front wheels.
Wing Flap and Slat Systems

Shafting (steel and CFRP)

BEVEL GEARBOXES
TEE GEARBOX
BEVEL GEARBOX
POWER CONTROL UNIT
RIGHT-ANGLE GEARBOX
ACTUATOR/GEARBOX
LINE GEARBOX
ACTUATOR/GEARBOX
BEVEL GEARBOX
ACTUATOR/GEARBOX
WING TIP BRAKE
ACTUATOR SLAT
WING TIP BRAKE
ACTUATOR SLAT
WING TIP BRAKE
ACTUATOR SLAT

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B787 Thrust Reverser

- Track Lock
- T-Piece
- Feedback Unit
- Manual Drive (2 plc)
- HCU
- Locking Actuators

11 feet
Hydraulic Flight Control Actuators

Design for:
Fatigue, wear, corrosion
strength, conductivity

Environment
weight, cost

Aluminium and titanium alloys, stainless steel, bronze, elastomers, composites, magnets, polymers...... anodising, electroplating, plasma spraying, PVD, many heat treatments, soldering, welding........

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A380 - flies with electric powered flight controls

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Responsibilities - Materials Technology

- Responsible for all aspects of materials engineering
  - Materials selection
  - Heat treatment and coatings
  - Design data
  - R&D for new materials and treatments
  - Failure investigations (test & service)
  - Specifications & standards
- 12 Materials Scientists at the 3 engineering locations supporting 180 design and 75 test engineers
What do Materials Engineers do?

At the desk, in the team
- Researching information on new materials
- Developing new materials and treatments
- Materials selection for new designs
- Calculations for design
- Writing specifications
- Report writing & review

In the laboratory/factory
- Testing
  - Strength
  - Fatigue
  - Wear
  - Corrosion
- Failure investigations
- Manufacturing investigations
- Set up and control new processes

Travel to Customers, Suppliers, Conferences

Career development – leadership, responsibility, management ……
Teamwork - Never Alone in Industry

Suppliers

System Design

Materials

Customer

Marketing

Stress Analysis

Quality

Component Design

Manufacturing

Project Management

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