Rolls-Royce Presentation
CMSC Conference

1 July 2011

Rolls-Royce, A Brief History

- 1904 – Founded by Charles Rolls and Henry Royce
  - Reliability
  - Integrity
  - Innovation
- 1914 – Commissioned by Britain to build aircraft engines
- 1941 – Teamed with Frank Whittle to build first Rolls-Royce gas turbine engine known as the Gloster Meteor
- 1953 – The Dart Engine was the first gas turbine engine for commercial aircraft and the Comet was the first turbojet to enter the transatlantic
- 1973 – Sold the car business
- 1995 – Bought Allison Engine Company in U.S.
- 2005 – Powered the maiden flight for the Airbus A380 double-decker aircraft
- 2008 – First Flight of F-35B Joint Strike Fighter LiftFan

Rolls-Royce

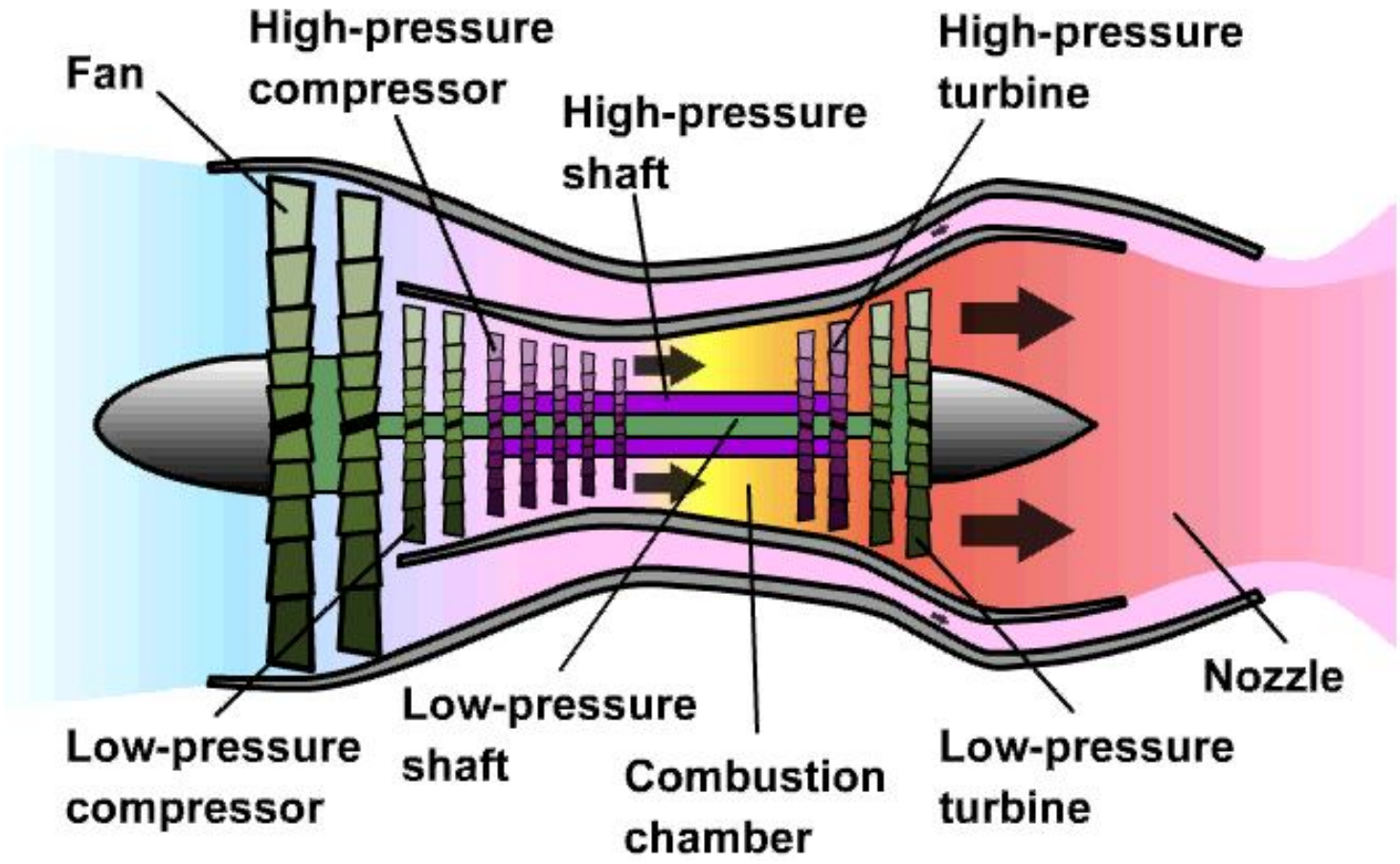
Rolls-Royce - Indianapolis history

Speedway Racing Company	1915-1917	
Allison Engineering Company	1917-1929	
Allison Division	1929-1970	
Detroit Diesel Allison	1970-1983	
Allison Gas Turbine Division	1983-1993	
Allison Engine Company	December 1, 1993	
Allison Engine Company	March 24, 1995	
Rolls-Royce Allison	July 1, 1998	
Rolls-Royce Corporation	April 3, 2000	

We don’t make cars

Rolls-Royce

We do make Gas Turbine Engines



Rolls-Royce

A truly global company

8000 engineers spread over 8 countries worldwide

Rolls-Royce

Rolls-Royce North America: Principal facilities

Rolls-Royce

Rolls-Royce North America Inc.
Seattle Operations
Bellevue, Washington
12 employees
2,605 sq.ft.

Provides customer support to Boeing

Rolls-Royce Canada Limited
Coquitlam, British Columbia
22 employees
17,000 sq.ft.

Repairs and overhauls marine engines

Rolls-Royce Canada Limited
Montréal, Quebéc
1,550 employees
599,505 sq.ft.

Designs and manufactures industrial gas turbines and repairs and overhauls aircraft engines

Rolls-Royce Energy Systems Inc.
Mt. Vernon, Ohio
950 employees
400,044 sq.ft.

Global HQ for the energy business, and design, manufacturing and packaging facility for industrial gas turbine compression and power systems

Rolls-Royce Engine Services- Oakland Inc.
Oakland, California
500 employees
220,000 sq.ft.

Repairs and overhauls aircraft engines

Rolls-Royce Naval Marine Inc.
Walpole, Massachusetts
140 employees
121,000 sq.ft.

Engineers and builds ship propulsion systems

Rolls-Royce Naval Marine Inc.
Annapolis, Maryland
15 employees
8,956 sq.ft.

Designs and manufactures marine control systems

Rolls-Royce Corporation
Indianapolis, Indiana
4,000 employees
3,698,481 sq.ft.

Designs and manufactures aircraft, industrial and marine engines

Rolls-Royce Energy Systems Inc.
Rolls-Royce Commercial Marine Inc.
Houston, Texas
30 employees
12,555 sq.ft.

Regional sales headquarters for Rolls-Royce Energy Systems, Oil & Gas, Power Generation and Commercial Marine businesses

Rolls-Royce Commercial Marine Inc.
St. Rose, Louisiana
38 employees
13,160 sq.ft.

Sells and services various marine propulsion products

Rolls-Royce Naval Marine Inc.
Pascagoula, Mississippi
50 employees
98,560 sq.ft.

Casts large ship propellers

Rolls-Royce North America Inc.

Crosspointe, VA – manufacturing facility under construction

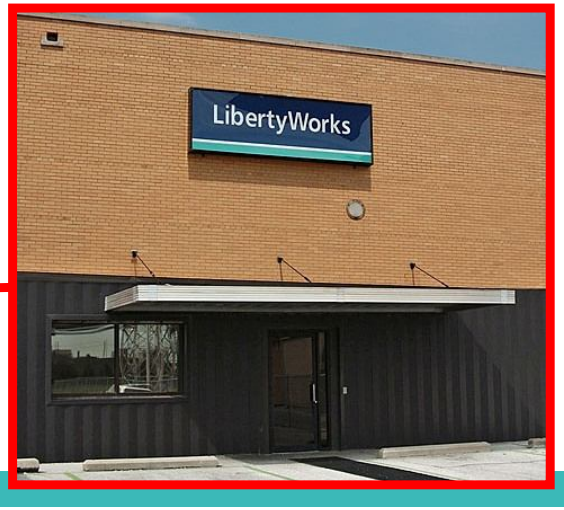
GTP 8032 03/05

Rolls-Royce

Rolls-Royce Indianapolis facilities

Rolls-Royce Corporation

and LibertyWorks®

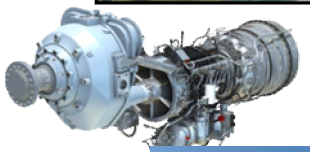


Rolls-Royce

Rolls-Royce Corp - Indianapolis

- Second largest manufacturer in Indianapolis
- Three primary engine products
  - AE – Turboshaft, turboprop, turbofan

  - T56 & 501 – Military turboprop, Industrial turboshaft



  - Model 250 – Helicopter turboshaft

- Products in development
  - JSF F136 – Military turbofan

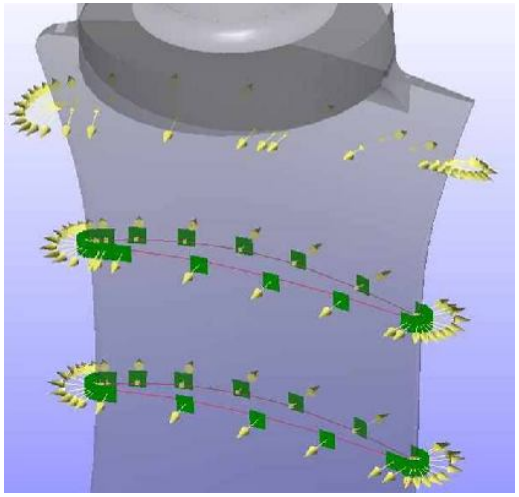
  - RR500 – Turboshaft
  - Advanced military technology demonstrators

- Primary customers: US Navy, Army & Air Force, Lockheed Martin, Embraer, Cessna, Bell Helicopter Textron

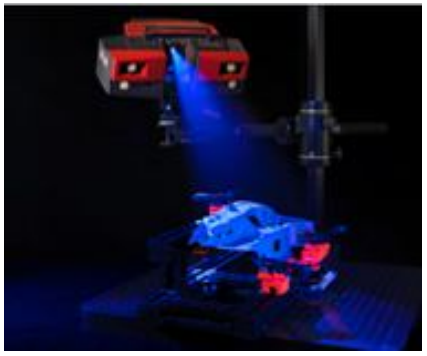
- 4400 employees – over 1400 engineers
- Winner of five Collier Awards
- LibertyWorks – Advanced technology development

Measuring parts

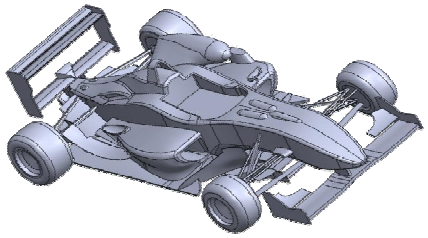
Many Valued Manufactures Contact

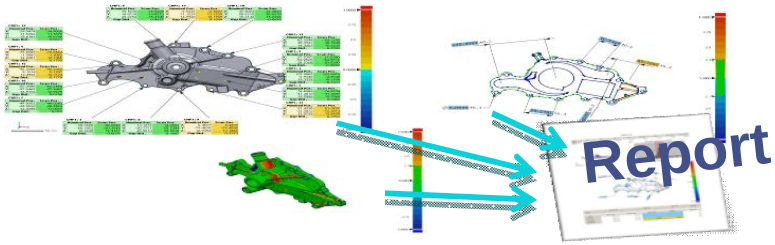


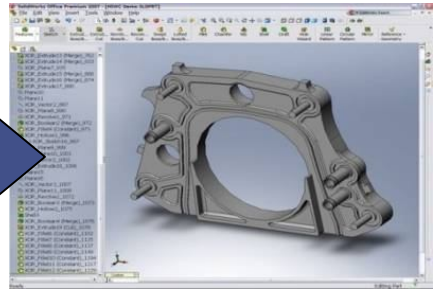
Many Methodologies of non Contact

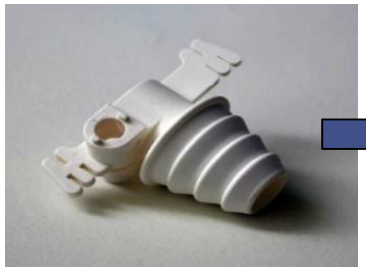


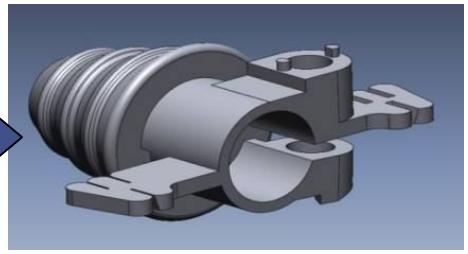
3D Scanning Applications





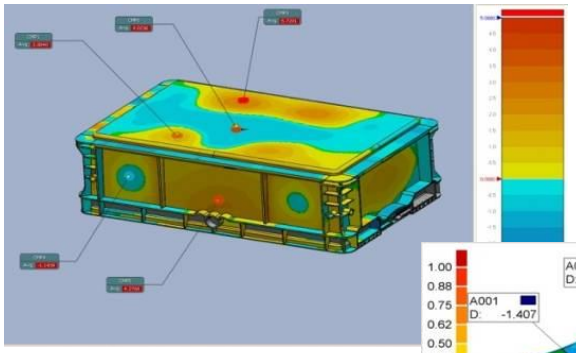


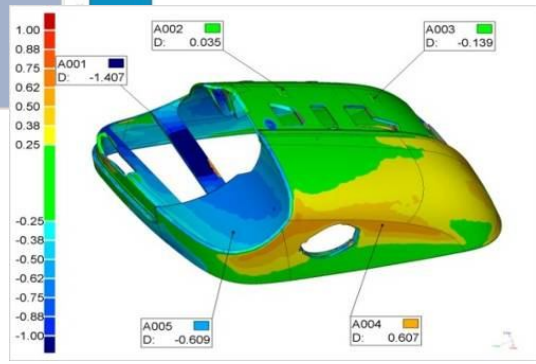




Reverse Engineering

Create 3D models from physical parts





Dimensional Inspection

Compares Measurement Data to CAD

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Future of Manufacturing

- **Perry Sainati, founder and president of Illinois manufacturer Belden Inc., Drive shafts and bearings manufacturer, writes in IndustryWeek (7/8), "US manufacturing these days is in the midst of a remarkable three-year recovery because for three years running manufacturing has not been about job growth," but rather "about reinventing the very process by which durable and disposable goods get manufactured." Sainati concludes, "America 's economic future will remain forever linked to our ability to manufacture quality goods. But the minute we start focusing more on this country's ability to manufacture jobs than we do our ability to manufacture things is the minute we step out onto what promises to be a very slippery slope."**

Rolls-Royce

Trusted to deliver excellence