

World-class Specialist Supplier of Precision Springs



Welcome to Force Technology

Force Technology focuses on technical excellence, aiming to be the world's most technically advanced and innovative spring manufacturer. The management team continues to serve the advanced engineering markets for high duty, high precision and high fatigue spring applications.

- Precision and high duty components
- Premium quality product
- Highly skilled and experienced team
- Advanced design and analysis
- Latest industry-leading technology and machinery
- Specialist high duty materials
- Advanced manufacturing processes
- Innovative problem solving service
- Technically advanced failure analysis service



About Us

Force Technology was established to pave the way for development and innovation in the high precision, high duty spring markets. The technology-leading manufacturing company is focused on continuously improving its products and systems whilst developing its innovative approach to design and development of processes.

The business management systems are fully integrated to work with quality management system ISO 9001, automotive quality approval TS 16949, environmental management system ISO 14001 and health and safety management system IOSH 18001. The directors continue to build their enviable reputation for high product quality by an integrated culture of lean, quality and business manufacturing management systems.

High investment in the latest technology is ongoing to secure our position as an innovator in precision

component manufacture, inspection and test. We work with the leading suppliers in the industry to establish a strong supply chain, with long-term key relationships with many of the world's best wire manufacturers.

Investment in the best people in the industry continues to ensure the company's technological lead in manufacturing excellence, as well as in design and development, in areas such as 3D modelling and finite element analysis. The directors bring some of the strongest experience in Europe in the area of high dynamic spring applications.

Services

Force Technology has world-leading experience in the key areas that ensure that a spring will work effectively in high performance applications where failure is not an option. These areas include design, optimisation, metallurgical and failure analysis service, and component testing.



Design

Our team has over 30 years of experience working with some of the world's most prestigious companies on solutions for their spring applications. From motorsport to the world's largest engines we understand your needs. Working in partnership with your design team, from concept through prototyping to volume production, we design for manufacture.

Amongst our portfolio of tools we regularly work with:

- Interference Fit and Beehive Shaped Compression Springs
- Progressive Pitch and Damped Designs
- Optimised Material Selection
- CAD Spring Design
- Prediction of Fatigue Life
- Goodman Diagrams
- Spring Damping Technology
- 3D Product and Spring Design
- FEA Finite Element Analysis
- Dynamic Stress Analysis
- Engine Valvetrain Moving Mass Analysis



Dynamic Spring Design Optimisation

Force Technology works in partnership with its customers' design teams to optimise dynamic spring design, to maximise fatigue life and give greatly increased performance benefits.

The spring design can be optimised by using a combination of:

- 3D Design
- Finite Element Analysis
- Dynamic Component Testing

This is particularly beneficial in the fields of high dynamic components such as Engine Valve Springs and Fuel Injection Springs.

Optimisation typically results in...

- Improved performance and increased top end speed
- Faster cam acceleration curves
- Improved NVH characteristics
- Extended service life and reduced lifecycle cost
- Improved engine fuel efficiency and reduced carbon emissions



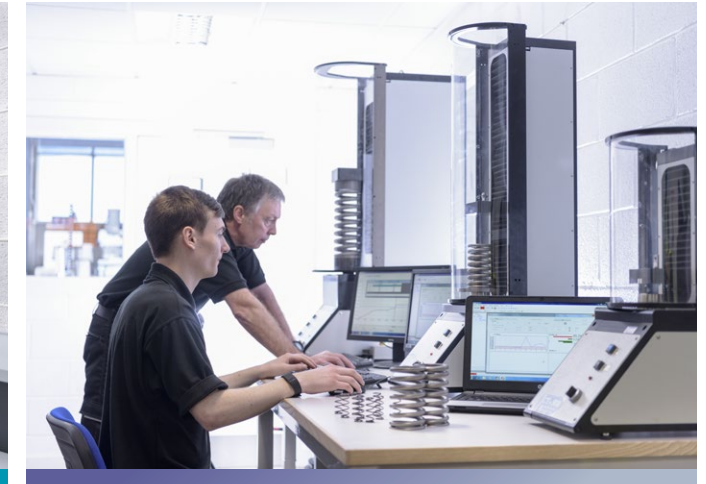
Metallurgical and Failure Analysis Service

The key to preventing failure occurrence is understanding the true mode of failure. We use scientific process and our long-term experience in this field to understand the root cause of failure.

We use the following failure analysis techniques:

- Fractography
- Metallography
- Micro Hardness Testing
- Digital Microscopy
- Scanning Electron Microscopy (SEM)
- Residual Stress Analysis (XRD)
- Extended Depth of Focus (EDF)
- Energy Dispersive X-ray Spectroscopy (EDX)

The nuances of failures of spring components are often particular to the spring environment. Our long experience in this field, particularly with very high cycle fatigue components, has resulted in an exceptional expertise in understanding the modes of failure.



Component Testing

We are engineers who believe in understanding the root cause of our customer's problems to ensure solutions that last and last. Consequently we work hard to validate and build on our empirical design data by using various means of component testing. We also use the latest load and rate testing equipment to ensure product tolerance integrity and batch-to-batch repeatability.

We can carry out the following:

- CNC Load and Rate Testing
- Spring Fatigue Testing
- Assembly Endurance and Fatigue Testing
- Strain Gauge Testing
- Natural Frequency Testing
- Engine Head Testing including:
 - Dynamic Response Analysis
 - Valve Float Testing

Products

Compression Springs for High Duty, High Risk & High Precision Applications.

Powertrain Components

- Engine Valve
- Fuel Injection
- Fuel, Oil & Water Pump

Drivetrain Applications

- Damper & Clutch
- Gearbox
- Braking
- Suspension
- Steering

Fluid Power Systems

- Hydraulics
- Valves
- Sealing



Market Sectors

Dynamic and High Dynamic Applications

Transportation

- Motorcycles
- Motorsport
- Specialist Automotive
- Premier Automotive
- Passenger Cars
- Light and Heavy Trucks
- Locomotive Power
- Marine Power
- Off Highway & Construction
- Industrial Power

Fluid Power

- Hydraulics
- Valve, Pump, Motor & Actuator





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