AUXITROL WESTON
ADVANCED SENSORS

Delivering Excellence

Resources for Next Generation Technologists

Passionate Experts
Unrivalled
Resources
Emphatic Quality
Invaluable!

At Auxitrol Weston, our name aptly describes what we do and what we have become famous for – **Advanced Sensors!**

We are no ordinary Engineering company. We are a company **fascinated by and committed to technological and Engineering advancement,** providing leading edge Sensor solutions to OEMs within a wide range of Industries, where performance measurement, data gathering and accuracy are often the absolute determinants of safety, reliability and trust for those who buy our technologies.

Consequently our Sensor products are very **specialised and highly regarded**, exceeded only in sophistication by the technologies in which they are embedded, we design for environments which are increasingly extreme and technologically challenging where operating tolerances are becoming less tolerated.

Against this backdrop of enormous expectation, Auxitrol Weston understands it takes special people, **passionate expert people**, across a wide spectrum of disciplines, to fulfil our Customers' dreams. People, with extraordinary talents and skills, who work individually and collectively in imagining the unimagined; in exploring the unexplored; in testing their hypotheses beyond conscious boundaries to explain the unexplained. And, who constantly review and refresh existing technologies, to produce Advanced Sensor products whose **consistent quality and reliability are unarguable**.
But, it doesn't stop there!

We understand too, it's only by "pushing the envelope", by intensifying our testing rigour, that we stretch ourselves and our products. And, in turn, creating the difference - generating the **invaluable knowledge** that helps us anticipate our Customers' ambitions now and in the future.

This is achieved by maintaining a **dedicated Research & Development** function, closely aligned to **product development, and verification resources second to none**, where our policy of **Design Assurance including Margin and Life Testing**, subjects all our prototypes and sensors to unprecedented extremes, in order that we can understand what it takes to break our products, so that you can't!

When you do business with Auxitrol Weston, you are not merely accessing **guaranteed quality and performance**, you are tapping into an unrivalled resource of more than **one hundred Sensor Experts** across four strategic locations with the finest product testing and qualification resources at their fingertips. They are also at yours!

Some may say **we're ahead of our time**. But, at Auxitrol Weston, it's simply always been this way. Here's a snapshot of our capabilities.

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Featuring AUXITROL, WESTON & NORWICH products

A Pioneering and Progressive culture

Research & Development

In a world where pedigree, is considered more important than invention, it would be too easy to perpetuate industry norms, by settling for incremental change. But, we work in a world that is rapidly changing, where we, like many of our Customers, are looking beyond the horizon, **exploring areas where Sensors and engineering technologies are yet to go.**

Driven by our Customers' technology road-mapping, we are constantly looking to extend the value of our ongoing generic **Research & Development** works, across our core product areas of Speed, Torque, Tip Clearance, Mass Flow, Temperature and Pressure.

To do this, we have built a strong group of collaborative partners who work with us to maintain our market leading position. While others tend to operate within NASA defined Technology Readiness Levels (TRLs) 6 - 9, at Auxitrol Weston we routinely work between TRLs 2 – 9, resulting in **ground breaking products with worldwide patents**.

We are currently engaged in a series of **initiatives across Europe and the USA**, working with leading Academic Institutions, Industry Laboratories, Technology companies, the French National Centre for Scientific Research, numerous Strategic OEM Partners and Government bodies. Together, we're **pushing the boundaries of existing Sensor understanding**, to bring new products to market with industry leading standards of performance.

It's an inspiring process, designed to thrill our own people as much as our Customers. And, it's further evidence of our commitment to **maintaining our Customers reputations**, our world leading position and our promise of **unswerving reliability**.

Simulation

During the embryonic stages of product design and ahead of prototyping, our experienced Stress Engineers undertake a series of **risk minimising** exercises which can identify up to 70 areas of potential product stress or loading. Recurring topics such as structural integrity, temperature, pressure and flight manoeuvre loading are among some of our routine analyses undertaken by our in-house simulation unit.

Working to NAFEMS standards and using **sophisticated hardware and software tools**, these areas of risk are subjected to intense scrutiny throughout the design cycle and where weaknesses are detected, the underlying **geometry can be altered very quickly** or parts analysed or tested again and again, as required.

This colourful and reassuring process of **continual correlation between test and analysis** reflects our intensity and **unparalleled responsiveness**, resulting in products our Customers know they can **trust**, while delivering added value **economies of time and cost**.

Analysis and Testing Capabilities include

- Thermal, Static and dynamic Finite Element Analysis (FEA)
- Rapid analysis of underlying geometry using automatic refreshing functionality
- Linear and Non-Linear analyses
- Computational Fluid dynamics (CFD)
- One-off Load tests and Load cells testing from 25N to 25KN
- Fatigue testing and Fatigue life prediction
- Strain Gauging to static and dynamic load conditions with over 150,000 readings per second

Environmental Testing

Vibration Test Laboratory

We have a comprehensive range of Shakers and Vibration Control equipment, offering the **widest envelope of vibration test parameters** for small to medium sized payloads.

And, while presenting our Customers with **irrefutable data** is our aim, Auxitrol Weston also insists that our employees and customers conduct their test works in the safest surroundings. This is why each vibration test is performed within its own acoustically protected cell, enabling multiple tests to be run simultaneously with **complete operator safety** and in **protection of test integrity**.

Shakers

Our Engineers and Customers have access to numerous Shakers, working within frequency ranges of between 5Hz and 20kHz with maximum **acceleration possibilities up to 180°g** (Bare table) or 270g with a 10kg mass. An option also exists to undertake vibration tests incorporating **elevated temperatures steps to 900°C**.

Vibration Control Equipment

Our advanced vibration control systems are available to support a full range of test modes with multiple channels and differential displays, which are networked to our Design Teams so they can monitor progress in real time. Our tests include

- **Random**
- **Random on Random**
- **Sine and Sine Dwell**
- **Sine on Random**
- **Shock profiles:** Half Sine, haversine, sawtooth, triangular and trapezoidal
- **COLA capability** for continuity monitoring
- **Tracking Dwell capability** to ensure resonances are authenticated

Laser Measurement Equipment
For more hostile environments, where electro-mechanical accelerometers are unsuitable, access is restricted or product integrity may be compromised by using conventional contact transducers, Auxitrol Weston provides Laser Measurement capability in the form of our Laser Doppler Accelerometers.

Our systems vary, from basic vibration velocity measurement, in a range from 0 to 1m/s to more versatile systems, offering low noise, high optical sensitivity, permitting a wide range of working distances with a range to 10m/s.

Climatic Laboratory
The sensor challenges, presented by modern engineering environments, are increasingly extreme. And, are matched only by our Customers' desires to see our **products perform optimally and longer** in these conditions.

So, not content to merely meet our Customer specifications, we have created **bespoke facilities** to take our products well beyond any reasonable expectations, so that we can be satisfied that they will **fulfil our guarantees** but as importantly, they deserve to bear the Auxitrol Weston name.

Our routine tests include

Thermal Cycling – Air Temperature Ranges from -70°C to 400°C. Ramp rates from 20°C to 40°C/minute with working volumes up to 500mm x 500mm x 500mm

Thermal Shock – Temperature Ranges from -70°C to 1400°C.

Thermocouple Accuracy / Drift – Temperature Ranges from Ambient to 7000C.
Cycle time is under 3 minutes

Temperature Calibration – Metal Freeze Point Calibration (to ASTM standards)
Tin (231.928°C)
Lead (327.462°C)
Zinc (419.527°C)
Aluminium (660.323°C)

Salt Spray Corrosion Testing – Temperature Ranges from Ambient to 55°C +/- 1°C with continuous spray / dry / air purge capability up to 14 days

Tropical Exposure / Humidity testing – Humidity Range from 40% -98% RN with Temperature Range Capability from -40°C to 100°C

Speed Laboratory
Within our **exceptional Speed Test Facilities**, at Farnborough, England, we are resourced to perform the widest range of bespoke wave signal tests and analyses, a fact not lost on some of the world's leading OEM's who routinely use us to qualify their own calculations or to establish unknown performance characteristics, particularly in the development of new products.

A significant aspect of this resource is our **two custom built test cells**, each weighing nearly 6 tons, within which we can simulate the dynamic working conditions of our sensors "on engine", rotating phonic wheels to **speeds of up to 50,000 RPM** in a safe working environment.

And, with our state of the art configuration of diagnostic and monitoring equipment, we are able to accurately capture and analyse data from a variety of routine and bespoke tests which are embraced by the following disciplines

- **Characterisation Testing** – a fully automated, multi-axis, slide system with bespoke data capabilities
- **Extensive Static Testing** with magnetic properties and coil interaction consideration
- **Dynamic Excitement** – including extreme thermal shock test conditions
- **Torque Wave Form Processing** to interpolate zero crossing statistics
- **High Speed Simultaneous Sampling** "on the fly" review and off line analytical assessment of multiple speed sensor signals

Icing Wind Tunnel
At Bourges, in France, we have our Atmospheric Laboratory. Here we are **constantly perfecting** methods of de-icing, utilising our Icing Wind Tunnel, **a unique cloud simulation facility** exclusive to Auxitrol Weston.

This enables us to recreate operational conditions ranging from controlled icing, through water droplet spray, to ice crystal bombardment of concentrations ranging from 0.2 to 8g/m^3 and up to 1mm in particle size, at various speeds and temperatures.

Here, we also developed our **revolutionary "All–Ice" alloy**, a product with extraordinary mechanical and thermal characteristics, which also exceeds the latest Health & Safety Environmental legislation. Already proving to be of particular advantage for applications where heating has historically been required, it is now **challenging conventional thinking** on ice accretion.

The Last Word in Product Development and Testing
We want our Customers to have access to only the most advanced Sensors in the world. We've resourced accordingly.

The finest Engineering intellect. Extraordinary resources. Encouraged passion. When you have all of this,

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there isn't a test or a sensor challenge the world can throw at us that we can't deliver upon.

The relationships between our Research and Development Unit, our many Test Laboratories, our Design and Simulation teams, go beyond connected. These are **truly integrated resources** which enable our Engineers to test as much as they feel is appropriate. To question their test findings. To simulate product characteristics and go on questioning, testing, analysing, refining and improving until they are completely satisfied.
And, because great ideas and product improvements are borne "of the moment", we've made sure we can **respond immediately** to bring them to life, so that you can **rely upon them - absolutely!**

Approvals / Accreditations
AS9100:2009
BS EN ISO 9001:2000
EASA Part 21 Subpart G
EASA Part 145
FAR-145
ISO 9001 & AS/EN 9100
ISO 9001:2000
ISO 9001:2008
Nadcap
TCAC

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