

CALIBRATION IN AEROSPACE

The Aerospace Industry encompasses research and development, as well as the design and manufacturing that makes vehicular flight both within and beyond Earth's atmosphere possible.



An area often not thought about however is the calibration of the technology that has made it easier for professionals within this industry to more efficiently conduct research on, develop and manufacture the machinery utilised for flying.

The Civil Aviation Authority (CAA) is the regulatory body in the United Kingdom for the regulation of aviation safety in the United Kingdom. In regards to Spaceflight, the CAA was appointed to undertake all Space Industry Act 2018 regulatory functions in addition to regulating orbital activities under the Outer Space Act 1986.

To ensure that vehicles capable of flight are able to perform properly, the manufacturing process needs to occur with high levels of accuracy. Elements such as the weight and dimension of different components found within aircrafts and spacecrafts are of the utmost importance. Failure to comply with the required specifications and quality standards means there is no guarantee of quality, performance and safety.

DID YOU KNOW?

A range of measuring equipment provides manufacturers with the accuracy they require to establish safety and guarantee quality, as well as stay compliant with the relevant laws and regulations. For example, Force Gauges are used to monitor the metal fatigue experienced by airframes, whereas equipment such as Voltmeters, Current Measurement and Oscilloscopes are used to ensure that electronic components are working properly.

However, over time as Measuring Equipment is used, it will begin to lose its accuracy as it becomes susceptible to factors such as wear and tear. Inaccurate readings can result in major consequences.

On May 14th, 1977, in Zambia, Africa, A Boeing 707-321C airplane crashed, resulting in the death of six people on board. The cause of this crash has been attributed to a combination of metal fatigue and inadequate failsafe design in the rear spar structure. Shortcomings in design assessment, certification, and inspection procedures were contributory factors.

This highlights the importance for professionals within the Aerospace Industry to ensure that the measuring equipment used in the manufacturing process is calibrated regularly as well as to the appropriate standards.

THE BENEFITS OF CALIBRATION

Regularly calibrating equipment will minimise any measurement uncertainty and ensure that the equipment is functional thus providing an accurate output in accordance with the regulatory standards.

After the calibration is complete, a calibration certificate is supplied by the service provider, which provides assurance that the equipment is working properly as well as demonstrating the standards used.

For professionals within the Aerospace Industry, in which their main priority is to conduct research and development on, as well as design and manufacture flight vehicles. The Calibration of measuring equipment provides a number of benefits. For example, it allows manufacturers to adhere to the strict industry regulations, it ensures that the vehicles produced are capable of flying and that the technology they utilise works properly and also prevents avoidable accidents from occurring, therefore improving safety.



WHEN SHOULD EQUIPMENT BE CALIBRATED?

The answer to this question will vary depending upon application.

Below are some useful calibration frequencies to consider.

Manufacturer's Recommendation

**When your organisation
requires a valid calibration
certificate**

**Annually, Biannually,
Quarterly, Monthly**

**Before/After an important
event, project or test**

**After an accident involving
your equipment**

WHO SHOULD RECALIBRATE YOUR EQUIPMENT?

When it comes to choosing which Calibration Service Provider, you should consider the following:

Laboratory Accreditation: Accreditation drives confidence in all sectors by underpinning quality of results, ensuring their traceability, comparability and validity. UKAS is the National Accreditation Body for the United Kingdom. A UKAS accreditation ensures the highest levels of impartiality and competence through the continuous assessment process.

On-site or Back to Base: Can the provider calibrate your equipment on-site as well as at their own location?

Reputation and Values: A brand's reputation and values are indicative of the quality of service you will receive. As the importance of calibration has been established, it is crucial to select a service provider with strong values closely aligned with delivering a professional and transparent service as well as a provider with strong experience within the calibration field.

Price: Price is a major factor which influences most if not all purchasing decisions. In regards to calibration, it is important to not only compare pricing between providers, but to also examine what is included in the service of different providers. It is also important to identify whether there are any hidden costs.

Turnaround Times: It is essential to select a service provider who is able to calibrate your equipment on time so that you keep in line with your own standards. Providers differ on the times in which they are able to calibrate your equipment.

Customisable Service: Choosing a provider who allows you to personalise your service offering is key to receiving the most suitable service you require.

WHO CHOOSE EUROPEAN INSTRUMENTS?



European Instruments are able to perform on-site or back to base Balance, Scale, Weight, and Pipette Calibrations. We offer three different service levels when it comes to calibrating your equipment ranging from UKAS Calibration for those who require traceability to international standards all the way to 'QuickCal' designed for those who may not require extensive measurements & calibration. We're also able to develop a personalised test plan for you to suit your calibration requirements whilst maintaining fast turnaround times.

We also do not set a minimum daily charge on our calibration jobs and offer a competitive rate.

We understand that booking calibration services can be a daunting task. This is due to the complex terminology and wide array of service specifications that need to be taken into consideration, to ensure you remain compliant with your organisations standards. However, because we're an independent organisation with highly experienced staff, we strive to help you pick out the most suitable calibration services for your individual requirements.

We strongly believe it's this transparent approach coupled with our unmatched experience, which makes us the best choice for your next Calibration.