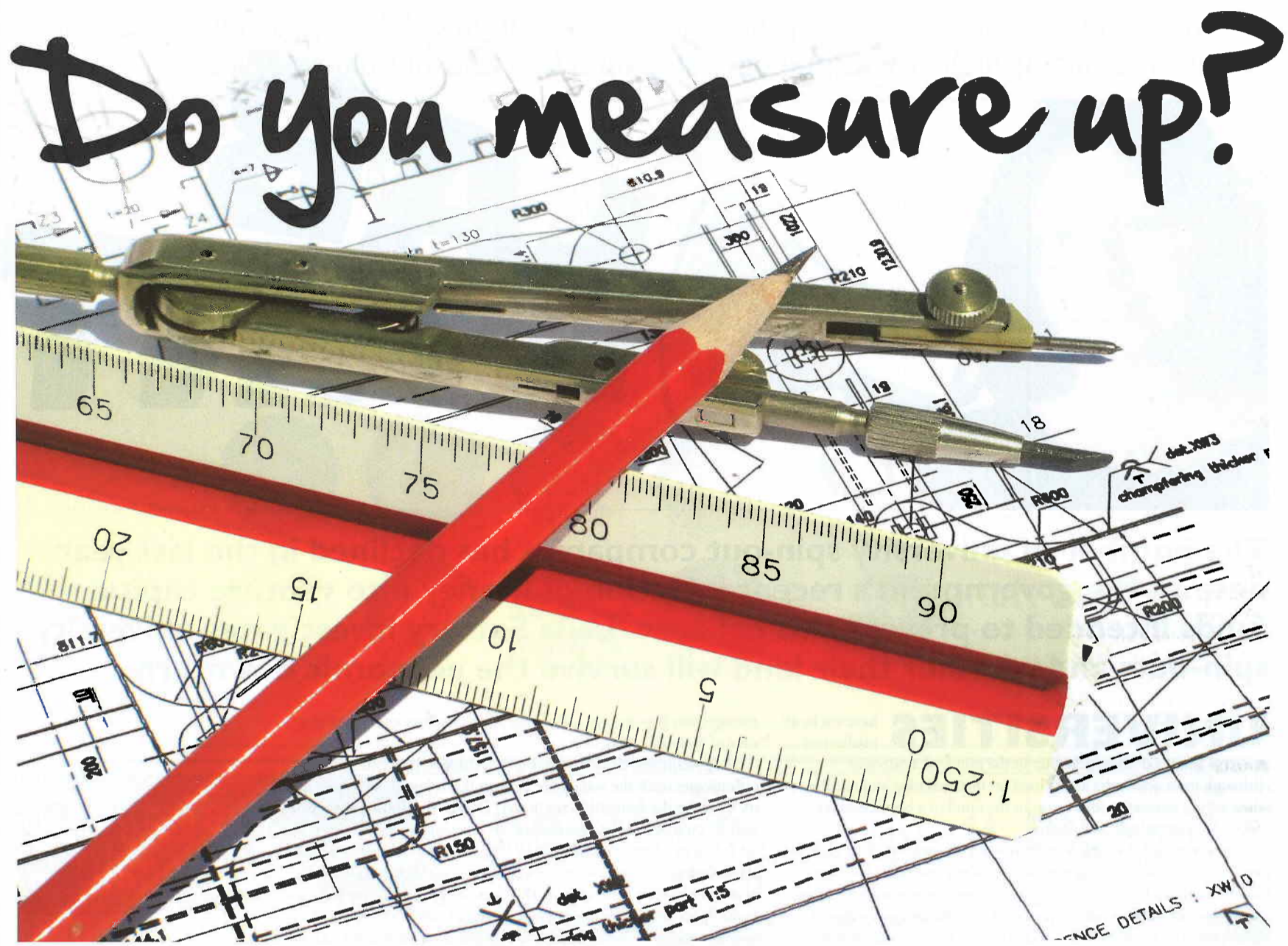


## Feature: Metrology



**Good measurement skills are essential to an efficient laboratory according to the National Physical Laboratory, Tom Ashby tells us why...**

**METROLOGY** underpins many laboratory and manufacturing processes. It is key to ensuring satisfied customers and ultimately retaining and winning contracts. Yet metrology is often taken for granted, with engineers and researchers trusting automated machines to give them reliable answers. Many do so without understanding the process or the potential shortcomings of that approach. Setting out a measurement strategy is key.

Many laboratory products, valves for example, must maintain very tight tolerances to meet strict production requirements. When producing products such as inhalator valves, which will be relied upon to deliver the drug dosage, it is essential to produce parts without a single defect, as even minor inaccuracies can be costly.

Organisations realised that without a good grounding in measurement it would not be possible to produce the kind of consistency and accuracy needed for efficient production lines. Without the knowledge to question measurement and the ability to solve problems, poor decisions and costly mistakes were being made. Organisations were therefore missing out on opportunities to improve their productivity, efficiency and ultimately their bottom line.

In 2006, the National Physical Laboratory (NPL) recognised this industry requirement for better measurement training, so it launched the NPL Training Framework, initially developing a Level 1 course in Dimensional Measurement. Four years later, over 120 companies and 600 learners have gone through this framework with more signing up all the time - including major multi-national corporations such as Rolls-Royce, Lockheed Martin and Trescal.

A Level 2 course quickly followed, and in November 2009 NPL launched a set of large volume (LVM) metrology training units. These were launched in response to further calls from industry which had recognised the benefits of the existing framework. Further courses in these and other areas are in the pipeline, subject to feedback from industry, including electrical metrology, temperature metrology and calibration units.

Although the training shows organisations how to use the technology, it goes further into why measurement is important, how to approach it strategically and how to adopt responsibility for the process. The reason for its success is that it takes a generation of workers who have come to rely on measurement machines, and reintroduces the questioning and planning culture. This allows them to build systems and processes into their daily routine and so make more informed decisions and generate more reliable results.

Coordinate measurement machines are a wonderful thing but engineers need to understand whether they are measuring a particular part or component using the most appropriate method. What are they actually measuring? Under what conditions? Should they trust the measurement result? People who have undertaken the NPL Training Framework start to ask questions like these, and they are finding there is often a better, more efficient way to measure.

NPL's Dimensional Measurement Training Framework is made up of four levels, two of which are now available, with levels 3 and 4 in development. The courses, validated by The National Skills Academy for Manufacturing (NSA-M), are classroom based, supported by a workbook - with theoretical and practical exercises. There is an ongoing

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