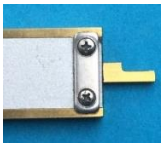
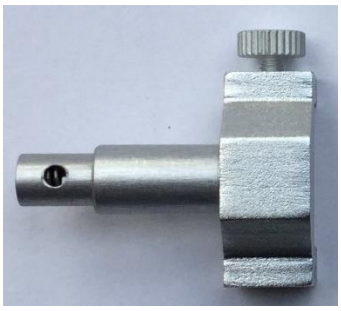
DIGITAL CALIPER ACCURACY

As FMS is based on the use of digital calipers the information in this document is for ordinary digital calipers. The standard to which almost all calipers (vernier, dial and digital) are manufactured is DIN863. This is also the standard to which calipers are normally calibrated to at authorized calibration facilities. An interesting fact is that the correct or recommended measurement force (N) is not given in any standard but will of course vary depending on caliper length. The information in this document is therefor based on a 150mm / 6 inch digital caliper.

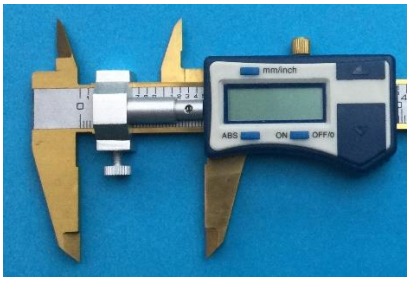




A40

Possibly the most common reason for inaccurate measurement results is that the measurement force by different users can vary. My personal measurement force recommendation is 4N – 5N and that no more than 2N should ever be required to move the sliding jaw. The A40 FMS caliper pressure device gives 4N – 5N at the cylinder hole.

A simple check (calibration) of your digital caliper is easy especially with an A40. I also prefer using a round item (ground and with a known diameter) when checking. Block gauges can tend to eliminate the influence of slack on the sliding jaw and that's why I measure (check) using a small cylinder near the caliper beam and measure again near the bottom of the jaws.



The digital caliper shown above (with a mounted A40) has a display of 0.005mm / 0.0002"

The external measurement deviation on a 150mm / 6 inch digital caliper in my opinion should not vary more than 0.02mm / 0.001". I've found that half that is normal. However it should also be remembered that twice those "inaccuracy" values are valid for internal and depth measurement.

A digital caliper has several advantages compared to dial and vernier.

1. Most can change from metric to inch and vice versa simply by pushing a button.
2. As the measurement is displayed there is never any discussion as to what it is "closest" to.
3. Several digital calipers have data outlets making SPC possible.

Calipers should be checked regularly and a small diameter item (e.g. a ball bearing of about 25mm / 1") can be used. Any small ground cylinder with a known diameter will of course be suitable.

My opinions expressed in this document are based on years of practical use and experience.

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