

# DATA SHEET



sartorius

## Data Sheet 001 – Frequency of Service and Calibration

There is always much debate over the recommended frequency for the service and calibration of pipettes. Pipette Doctor has accumulated much empirical data on the 'mean time between failure' (MTBF) and the reasons for pipette failures to offer some basic advice on how to determine how often your pipettes require service and calibration.

Regular servicing would actually not prevent 90% of all pipette failures. This might seem a strange comment from a pipette service company, but it is true nevertheless. 90% of all pipette failures are random, occurring either from an accident or from misuse. Only 10% of pipette failures arise as a result of normal, natural wear and tear.

However, when you consider that over 50% of the random failures are what we call 'silent' failures then the case for regular checking becomes critical. A silent failure is one where something has happened to the pipette to take it outside of acceptable parameters but nothing is apparently wrong with it. An example of this may be liquid being drawn up into the body of the pipette and corroding the piston assembly.

Pipettes are simple devices. They do not actually need servicing more than once or twice per annum, especially since we know that more regular servicing would not be of any great benefit to 90% of any pipette population. They are best left alone. What is important is frequency of checking; to determine which pipettes are moving out of acceptable tolerances, especially as a result of 'silent' failure. The frequency of checking can be determined by three simple questions;

- 1) What is the pipette used with?
- 2) How well is the pipette looked after?
- 3) How often is it used?

For example: A pipette used with a non corrosive liquid, stored vertically and well looked after and only used weekly will have a probable MTBF of about 4 years and would only need to be checked between 4 – 6 months. Whereas a pipette used daily with a corrosive liquid and stored horizontally will have a probable MTBF of less than a year and should be checked every 2 – 4 weeks. Now with the correct training this checking can be carried out in the laboratory by the end user, calling on a service company only to rectify problem pipettes. The pipette service company would then come in once or twice a year to carry out a full service and calibration.

In your laboratory you can determine your own probable MTBF simply by answering the three questions above. This would then give you a reasonable guide of how often your pipettes should be checked and how often they should be serviced.

Remember this: Leading pipette manufacturers state that seals and o-rings in their pipettes should last a minimum 100,000 operations. For the average pipette that means that the wearable parts should last an absolute minimum of 12 months.

With regular checking you can ensure that your pipettes are within your acceptable tolerances without the additional cost of unnecessary servicing or spares being fitted.