

Data Logger in Steam Sterilization / Autoclaves

In the modern world more and more attention is paid to the issues of proper organization of the manufacturing process and quality improvement, decent healthcare system organization, etc. It has been stated many times that proper sterilization is one of means of prevention of any possible spreading of contaminants in the result of non-compliance with the regulations and norms, and a necessary condition for products better quality. For example, not any single healthcare institution can exist without using autoclaves or especially designed sterilizers (ISO norms 17665). The sterilization systems are a part of any manufacturing process, especially in food or pharmaceutical industry. There is a big variety of these machines (size, operating principle, design) and it is possible to find the one which can fit any requirements and working environment.

But one thing is to have an autoclave and the other is to be sure that the processes going on inside really fulfill all the requirements imposed. Data Logger comes in play then, as exactly this device, when used in the process of steam sterilization provides all the necessary information about whether the process is accurate enough. With the help of this product one may not only monitor, but also do necessary recording of the information. It depends on the user how long the interim should be between the recordings. Based on the measurements received with the help of data logger the sterilization process is either approved to be valid or not.

Data logger became a good option to using thermocouple systems. The latter were a necessary part of any autoclave, but their application could sometimes be connected with certain problems – time consuming installation, lay-up and time loss in case of thermocouple defects and malfunctions. It also takes much less time to calibrate the data logger. It is important that all the data loggers must be calibrated before use in the autoclaves.



Thermocouple system was recommended for use in the new autoclaves (when it was necessary “to get familiar” with the device) because of the possibility for “real time” data. If the autoclave has been in operation for a while and all the necessary adjustments have been finished, data logger gets a definite priority; even in spite of the fact that thermocouple provides immediate “real time” information. Recently it has been really a serious difference between thermocouple and data logger, but not anymore. Nowadays there are also wireless data loggers which have got a function of transmission of information “live”. Wireless devices have got an unconditional advantage in comparison to the wired ones.

Data logger monitors temperature, humidity, pressure and time and there is a possibility of connection to the computer and transference of data via interface. It is also possible to save the measurements data on a portable device, like USB-stick or notebook. With the help of the necessary software all the data can be processed and the accurate results may be presented in any convenient format (graph, table, data report etc) which in its turn corresponds to the norms and requirements.

The data logger used for steam sterilization monitoring is a very robust and solid device (made of stainless steel). It is appropriate for use under extreme conditions, i.e. high temperatures (some up to 150° and more) and pressures. One of the advantages of such data loggers is a small size which



allows inserting them inside the camera alongside with the necessary products, equipment or instruments (all made of materials resistant to high temperatures, e.g. heat resistant glass or stainless steel) undergoing the sterilization.

Data logger in steam sterilization is an important tool allowing the validation of a sterilization cycle. The device is easy to use and gives reliable and accurate results. Tests may be taken for a few times and if all of them are successful it becomes a confirmation of an

appropriate sterilization level and compliance with the regulations and norms (either in medical, pharmaceutical, industrial or any other sphere). Sometimes data loggers are also used for regular check of autoclaves.

No matter which model and design of data logger it goes about, one thing is absolutely clear: to guarantee security and safety, to improve the quality, to follow the regulations and requirements it is an absolute “must” to use this rather “small” but very helpful and important device.