

Pressure Pump VS Syringe Pump

Microfluidics is an advanced research technology in the fields like chemistry, biology, and biochemistry, also known as lab-on-a-chip or microfluidic chip. For the desired research results, appropriate flow control is particularly important. In the application field of microfluidics, there are currently two kinds of devices that are most widely used, namely pressure pump/pressure control system and syringe pump.

In this article, you will learn about the characters of the two different devices and the best choices for their applications. For now, there are many applications for syringe pumps, but pressure pump/pressure control system has also been increasingly put into use. However, there are many differences between the two. This article will briefly compare and analyze these two types of microfluidic control devices, providing some references for your selection of microfluidic control equipment.

WHAT ARE THE CHARACTERS OF THE PRESSURE PUMP / PRESSURE CONTROL SYSTEM?



Pressure pump, also known as pressure control system. It mainly controls the pressure by operating a pressure controller, and most of them require manual adjustment. Some models are composed by flow controller, flow/pressure sensor and control software. Usually there are multiple channels, which can control multiple fluids at the same time, and vacuum can be created during pumping. The flow rate is relatively stable and the response speed is faster.

However, most of them require a complete pressure control system composed of various equipment such as computers, pressure controllers, air sources, flow sensors, etc. Because it consists of multiple modules and the choices on the market are pretty limited, it is much more expensive than an intergrated or seperated type of syringe pump, and its high price is only more meaningful when the user needs multiple channels at the same time.

WHAT ARE THE CHARACTERS OF THE SYRINGE PUMP?

DK INFUSETEK laboratory benchtop syringe pumps offer a wide flow range, precise flow volume and flow rate, particularly suitable for microfluidic experiments, with a minimum flow rate of 0.008nL/min. They can be used without various additional modules, making it easier and faster to be used in the experiments.



In addition, our unique CFSP-1 constant flow syringe pump can also continuously and stably output liquids and can operate at pressures up to 20 bar, which means it can adapt to high pressures that many pressure control systems cannot handle.



If there are no special needs, users can only choose single-channel or dual-channel ISPLab syringe pumps; and due to the relatively lower price, even if you buy SPM/SPC seperated syringe pumps with up to 8 optional channels, it is affordable.



COMPARISON

Pressure pump and syringe pump differ greatly in various terms of ease of use, cost, functionality and performances.

CONCLUSION

If you have higher level of requirements for response speed and pressure control during the experiment, the pressure pump may meet your needs. But if you want a device with limited cost, wide application range, simple to set up and easy to use, then syringe pump could be your best choice.

Numerous research papers have also shown that these pumps are suitable for basic microfluidic research. According to your research needs and budget, you can choose the equipment whatever suitable.

Product Knowledge



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