

The Next Step In Flow Chemistry Under Pressure : The FlowCAT SA

Contrary to popular belief, “Flow Chemistry” has extensively been used in small scale chemical production for decades, especially for chemistry under pressure.

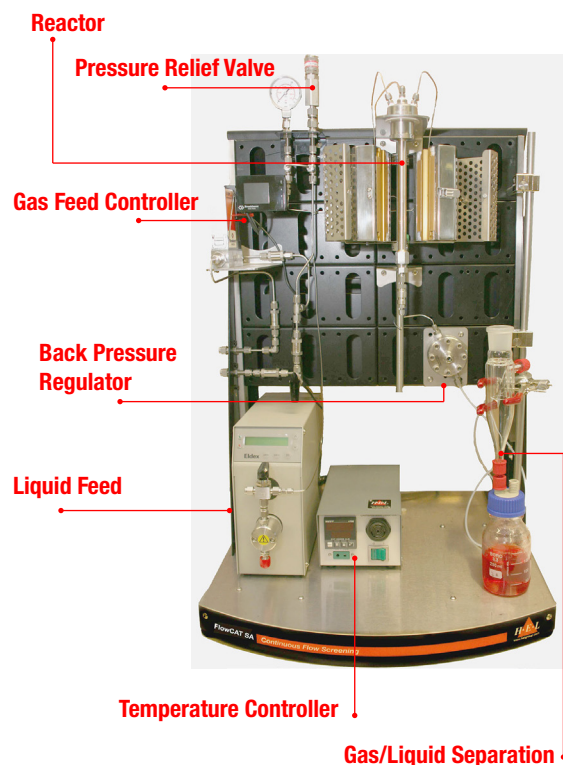
The HEL FlowCAT is a bench-top platform enabling continuous flow heterogeneous catalysis for use in applications including hydrogenation, carbonylation, oxidation and is widely used in the pharmaceutical and fine chemical industries.

In response to customer requests, a lower price platform is now being launched - **The FlowCAT SA**.

The **FlowCAT SA** provides a more focused set of working conditions, and the control is semi-automated (hence “SA”). The compact mechanical design is of the same quality and robustness (of the original FlowCAT), but working pressure and the temperature are defined using local digital controllers (instead of through software).

Liquid-gas reactions at quite extreme conditions (up to 300 °C and 100 bar) are supported. The maximum operating conditions for the **FlowCAT SA** are lower than for the automated FlowCAT, which is more than adequate for most processes.

The **FlowCAT SA** is an excellent addition to any lab for around half the price of the standard FlowCAT.



The FlowCAT SA

Reactor Sampling – 24 Hours Continuous Sampling With The Automatic Sampling Unit (ASU)

Sampling (and then diluting/quenching) at exact defined times both day and night are now possible with a compact (~ 25 (l) x 27.1 (h) x 17.5 (w) cm) portable **Automated Sampling Unit (ASU)**, on both small and large reactors.

A recent design change has enabled the cost to be reduced without any compromise in features:

- | No cross-contamination between samples
- | Wetted parts PTFE/glass
- | Consumable costs virtually zero
- | Essentially no preparation and setup time

Touch Screen Control To Specify Sampling Schedule

Unlimited Samples
If Vials Are Exchanged



The ASU

HEL Bioreactor Product Innovations

NEW

Bioreactor Inventory Control (BIC)

The control of culture volumes in bioreactors is critical to ensure optimum conditions for cell growth and to achieve high cell densities.

HEL has developed a system that is based on proven technology but is more traditionally used with large scale fermenters.

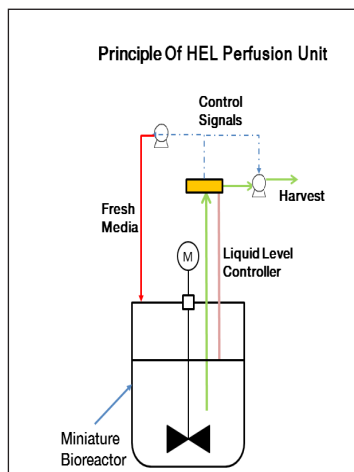
The **Bioreactor Inventory Control (BIC)** constantly measures ONLY the volume of the bioreactor contents. The BIC is also immune to effects of foaming that can hinder accurate level detection. The BIC technology can be easily added to any reactor, either to the head plate or remote from the bioreactor, and is the size of a matchbox.

The system can accurately maintain the volume of any bioreactor regardless of size or culture medium. It's design also allows easy adaption to HEL's parallel mini-reactors, where loss of material is often critical.



The HEL BIC

Perfusion In Miniature Bioreactors



The commercial importance of producing higher density mammalian cell cultures is well recognised and technologies suited to production scale reactors are becoming widely accepted.

However, it is not possible to demonstrate the benefits of perfusion on a small scale.

HEL is developing a system that will lend itself to miniaturisation with prototypes already being trialled. The technology is an extension of the BIC described above and is also capable of being scaled up to larger reactors.

The objective now is to enable these same reactors to produce cultures with higher cell densities, using the perfusion technology being developed.

SPECIAL HEL EVENTS IN 2016 - <http://www.helgroup.com/events/>

20th January 2016

FREE Webinar - Innovations In Miniature Bioreactor Technology

[Further Details](#)

Location: Web - 3.00 PM (GMT) // 10.00 AM (EST) // 4.00 PM (CET) // 7.00 AM (PST)

25-26th February 2016

The HEL 2016 Process Development Conference & Workshop

[Further Details](#)

Location: Goa, India