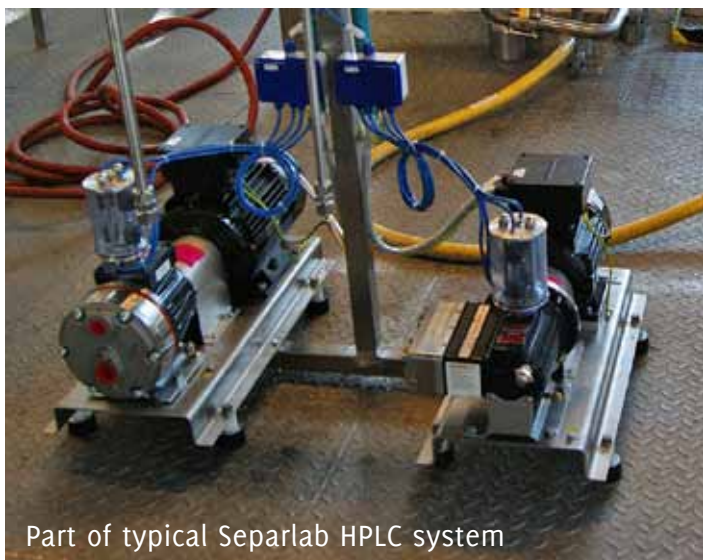




Part of typical Separlab HPLC system

WANNER
Hydra-Cell[®]
 Seal-less Pump Technology

Case Study

Czech HPLC specialist standardises on Hydra-Cell seal-less pumps

Separlab Ltd, a Czech Republic specialist in high-performance liquid chromatography (HPLC), standardised on Wanner Hydra-Cell pumps in its industrial-scale systems - using them for delivering 'mobile phase' solvents and injecting sample mixtures. Hydra-Cell is preferred to single-diaphragm and piston-plunger pumps on these applications.

The Prague-based company processes, designs, builds and supplies individual products and complete systems for home and export, with customers as far afield as Israel and India. It serves two main market sectors: laboratories and production plants. In both these areas it concentrates on preparative and process chromatography, rather than analytical. A common application is purification of a compound in sufficient volume for further work, for example quantitative analysis or use in a process.

In HPLC, impure compound is injected into a high-pressure solvent stream (the mobile phase) and forced through a column packed with granular sorbent (the stationary phase). The technique exposes molecular and other internal differences within the compound and results in the progressive separation of its constituent parts.

Pump specification and performance can be critical factors in this process. Essential features include high-pressure pumping capability, resistance against corrosion and ability to produce precise flow with no pulsation. Consistency is also vital.



Pump code: G10XKSGSFEMB



Pump code: G03XKSJHFEMA

These requirements broadly apply at every level of HPLC, irrespective of the scale of the process, but scale affects the type of pump available. For laboratory work and for small industrial preparatory systems, Separlab offers purpose-designed high-pressure piston pumps. The highest capacity pump in this range can deliver solvent at 70 bar pressure at flow rates from 100 ml/min to 3000 ml/min (3 l/min).

For HPLC on a larger industrial scale flow rates are higher, but flow must still be pulse-free. Pressure requirements remain high, while ease and accuracy of pump control, reliability and easy maintenance are also important. To match and reconcile these potentially conflicting needs Separlab turned to Hydra-Cell pumps.

The company saw that the Hydra-Cell concept is based on a combination of features relevant to the demands of HPLC but not offered in alternative pump designs: for example, multiple diaphragms in a single head.

Customer – Separlab

Separlab is one of the numerous equipment manufacturers whose customers are enjoying the practical benefits of Hydra-Cell seal-less pump technology.



Part of typical Separlab HPLC system

The diaphragms are hydraulically balanced and stress free, and their configuration gives the Hydra-Cell virtually pulse-free flow, while helping to reduce

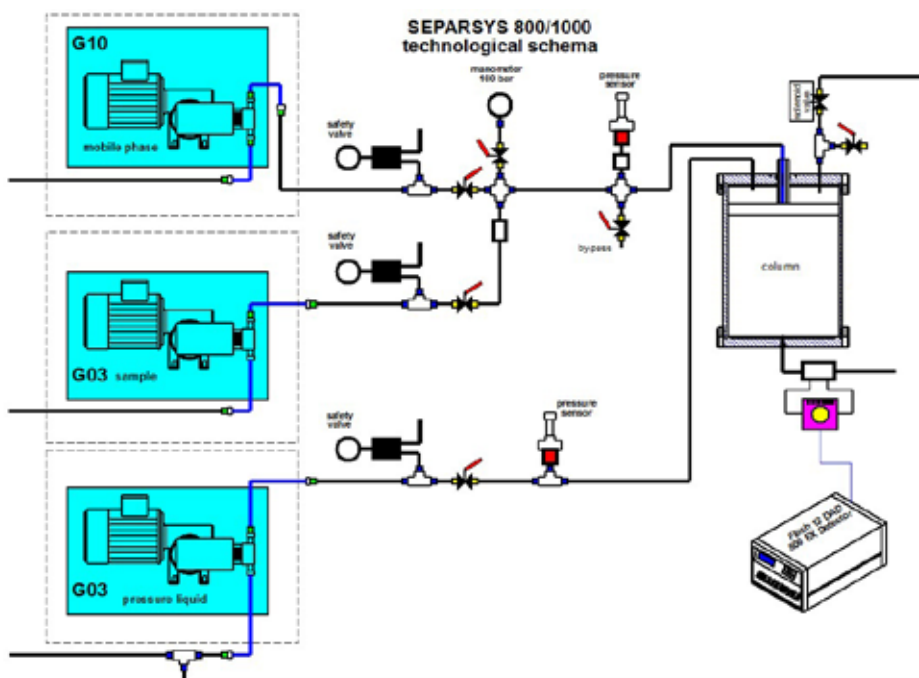
Separlab cited several other Hydra-Cell features necessary or desirable in HPLC work. Among them were mentioned wide flow and pressure range, dry running capability, ATEX compliance – and (not least) seal-less design, with all its attendant benefits.

Two Hydra-Cell models are offered as standard equipment in Separlab HPCL systems: the G03 (max flow 11.3 l/min at 70 bar) and the G10 (up to 29 l/min at the same pressure).

They are mainly used in continuous delivery of mobile phase, initially pumping low viscosity organic solvents, both polar and unpolar, but not excluding future use of water solutions.

Sample injection (1 time each run) was the next application, followed by use of the G03 to deliver special auxiliary liquid to a piston on the column.

Typical Separlab system for industrial preparatory industrial chromatography



G10 pumps are also employed on mobile phase delivery. Their higher flow is needed for columns of more than 500mm ID.

WANNER ENGINEERING - WORLD HEADQUARTERS & MANUFACTURING
Minneapolis USA
t: (612) 332-5681
e: sales@wannereng.com

WANNER ENGINEERING
Latin American Office
t: +55 (11) 3565 4001
e: sales@wannereng.com

WANNER INTERNATIONAL
Hampshire UK
t: +44 (0) 1252 816847
e: sales@wannerint.com

WANNER PUMPS
Shanghai CHINA
t: +86-21-6876 3700
e: sales@wannerpumps.com

WANNER PUMPS
Kowloon HONG KONG
t: +852 3428 6534
e: sales@wannerpumps.com

WANNER
Hydra-Cell[®]
Seal-less Pump Technology

www.hydra-cell.eu