

FlexiPro

4 ranges of flow rate from 0.6 up to 600 LPH

Flexible and simple configuration of adaptable flow rates range to meet scalability needs

Totally preassembled flowpath, fast and easy to install

High precision Gradient & Dilution

Easy to operate software

21 CFR Part 11 and USP VI compliant

Complete documentation for regulatory submissions

Single-Use LPLC System for Process scale-up and manufacturing

The VERDOT Ips² FlexiPro is a benchtop system adaptable to a wide range of chromatography processes. The fluid path containing all product contact parts can be replaced in less than 30 minutes in order to support multiple applications without the risk of cross contamination.

Designed with a footprint of traditional pilot scale systems, the unique FlexiPro system can accommodate large range of flows:

- Ultra low-flow (0.6 to 6.6LPH)
- Very low-flow (1 to 30LPH)
- Low-flow (5 to 150LPH)
- High-flow (20 to 560 – max 600 LPH).

The wide flow range capabilities of the FlexiPro make it suitable for a wide range of applications and columns sizes.

"Adaptation sets" are proposed for each size of flowkit. These adaptation sets can be exchanged in less than 10 minutes from a type of flow kit to another.

Self-contained system

The FlexiPro is a compact benchtop self-contained system that integrates all necessary hardware components. A laptop PC with SCADA software is provided in order to perform the chromatography process and communicate with the PLC.

The cabinet is constructed of stainless steel with a watertight design. The fluidics board which is covered by a transparent door contains routing channels which guide and secure the appropriate fluid path.

High precision gradient and flexible design

Inline dilution or gradient of aqueous buffers can be performed with the FlexiPro system.

Only the most precise and reliable disposable instrumentation is used in order to monitor the process and control the flow rate and dilution.

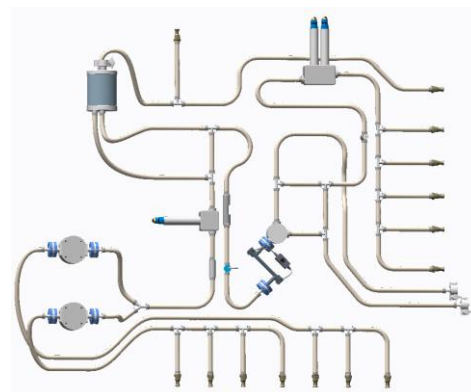
Because one size doesn't necessarily fit all, the FlexiPro is designed with a high level of flexibility:

- Disposable fluid path: 100% disposable instrumentation with an inline dilution error of less than 4%
- As a result of flexibility in the FlexiPro design, VERDOT Ips² can specify the precise configuration of the fluid path needed (i.e. less inlets/outlets, less instrumentation, single pump).

VERDOT Ips² proposes as Standard fluid paths assembled in ISO7 clean room, shipped in double bags with complete documentation.



Low Flow Kit installed on the FlexiPro system



Pre-assembled Disposable Low Flow Kit Ready-to-use

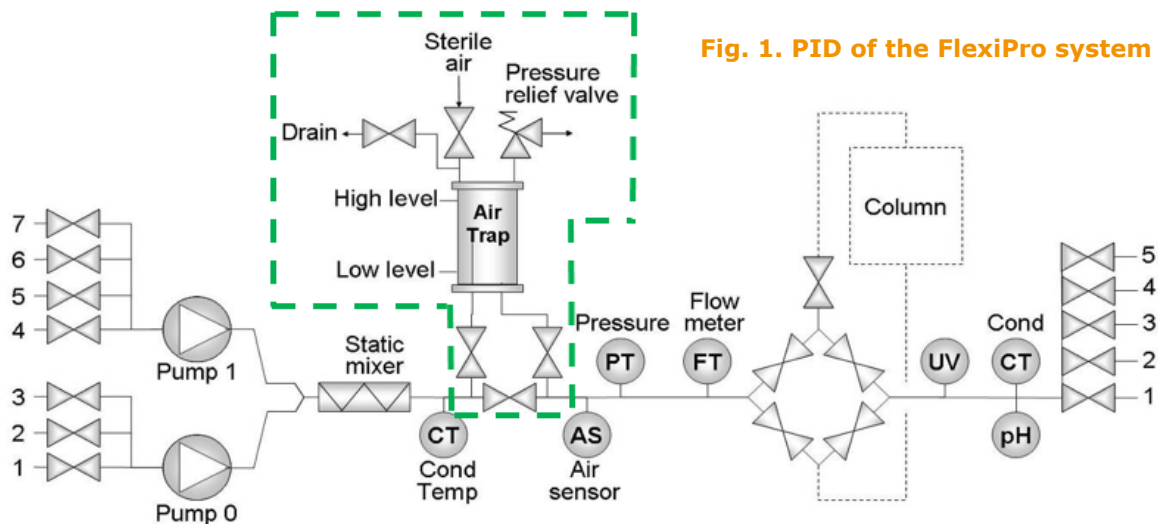
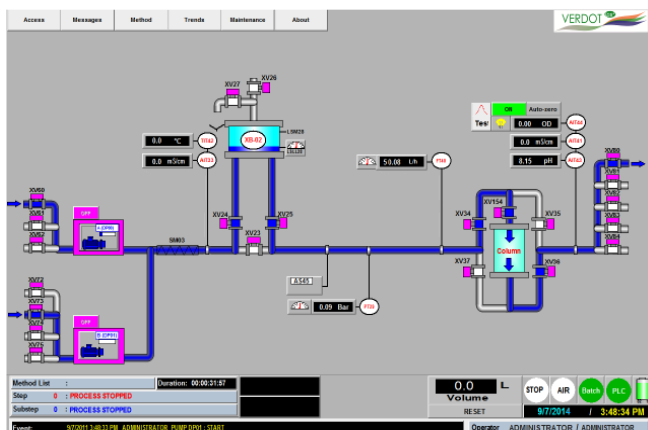


Fig. 1. PID of the FlexiPro system

----- : Air trap and associated valves are for LFK and HFK only

System controller screen



User-friendly software

The system controller employs a simple, user-friendly interface for data input and programming commands. The process skid is password protected (four customizable access levels), and all events and actions are recorded in accordance with cGMP guidelines.

The software allows the system to be operated in manual or automatic mode. The automatic mode includes:

- Multiple steps
- Configurable fluid paths
- Control of valves
- Multiple end-of-step conditions
- Pausing and halting alarms
- Interactive pausing steps
- Compliant with 21 CFR Part 11

Full trend review, printing and possibility of data export from the system are all included in the standard.

Pre-programmed routine for testing and calculating Asymmetry and HETP values is included.

Key data can be monitored remotely through OPC UA.

Specifications

Nominal Flowrate	Ultra Low Flow Kit: 0.6 – 6.6 LPH Very Low Flow Kit: 1 – 30 LPH Low flow kit: 5 - 150 LPH High flow kit: 20 - 560LPH (max 600 LPH)
Operating pressure	Up to 4 bar at column inlet
Flowmeter accuracy	± 2 % of the full range
Dilution accuracy	± 4 % of the measured value
Viscosity	1 to 3 cp
Tubing dimension	Ultra low flow kit: 1.60 mm Very low flow kit: 3.20 mm Low flow kit: 6.35 mm High flow kit: 9.50 mm
Temperature range	From 2°C to 30°C (60°C for CIP)
Pump	Ultra/Very low flow kit: Peristaltic Low/High flow kit: Membrane pump technology
Flowmeter	Ultrasonic
UV wavelength range	280 nm (other available) – 0 to 2 AU Dual wavelengths available – 0 to 3 AU
Conductivity range	1µS/cm - 500 mS/cm
pH range	3 - 10 pH
Bubble trap	Included on Low and High flow kit - 2 level capacitive sensors - drain & air injection valve (≤0.4 bar)
Valves	Pneumatic pinch valves (6 bar)
Air sensor	Non invasive
Material and certificates wetted parts	Plastic parts: PP, PSU, PVDF, Silicone Elastomers: EPDM Bubble trap: Glass All wetted parts BSE/TSE free and USP class VI compliant
Degree Protection	IP54
Surface finish	Ra<0.6µm
Weight	250 kg
Dimension (HxWxD)	1100 x 1280 x 670 mm
Power supply	220 V 1p 50/60Hz 115V 1p 50/60Hz
Air supply	6 bar
Control	PLC: OMRON SCADA: iFix 5.8
PC	Laptop PC
Support	4 feet, Installation on a Lab Desk or on the FlexiPro WorkStation