

EOR LAB[®]
Research Equipment

EORLAB Research Equipament
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**MANUFACTURER AND WORLDWIDE SUPPLIER OF
INNOVATIVE HIGH-PRECISION PULSE-FREE PUMPS AND VALVES**

www.vindum.com

VP SERIES HIGH-PRECISION METERING PUMPS

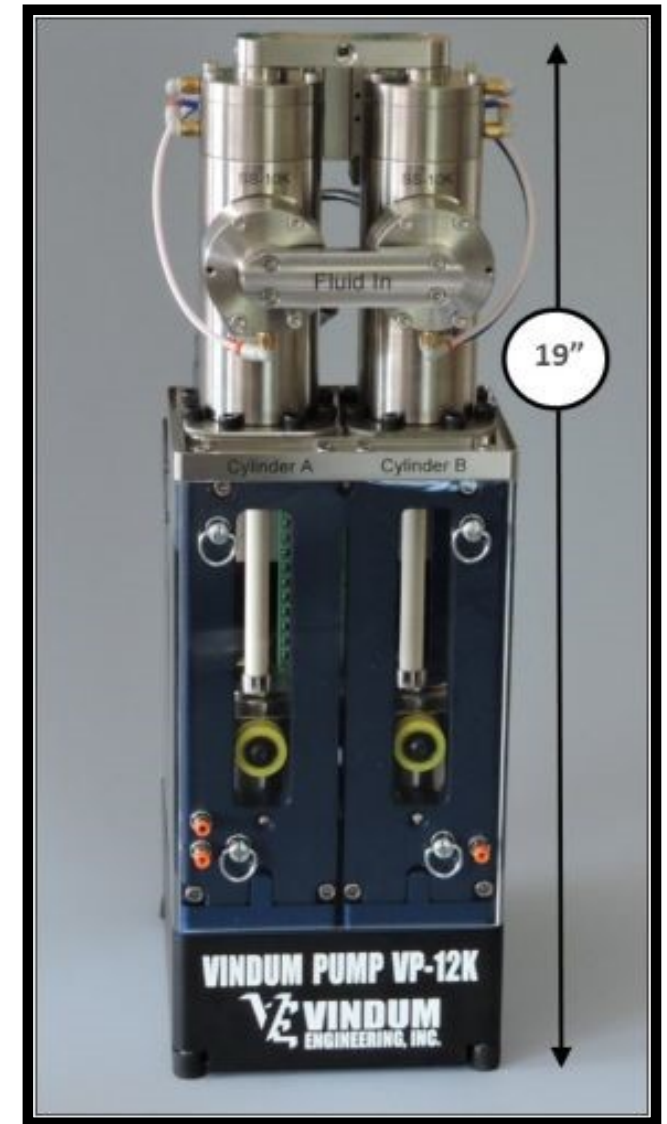
THE BEST COMBINATION OF:

PERFORMANCE

QUALITY

&

VALUE

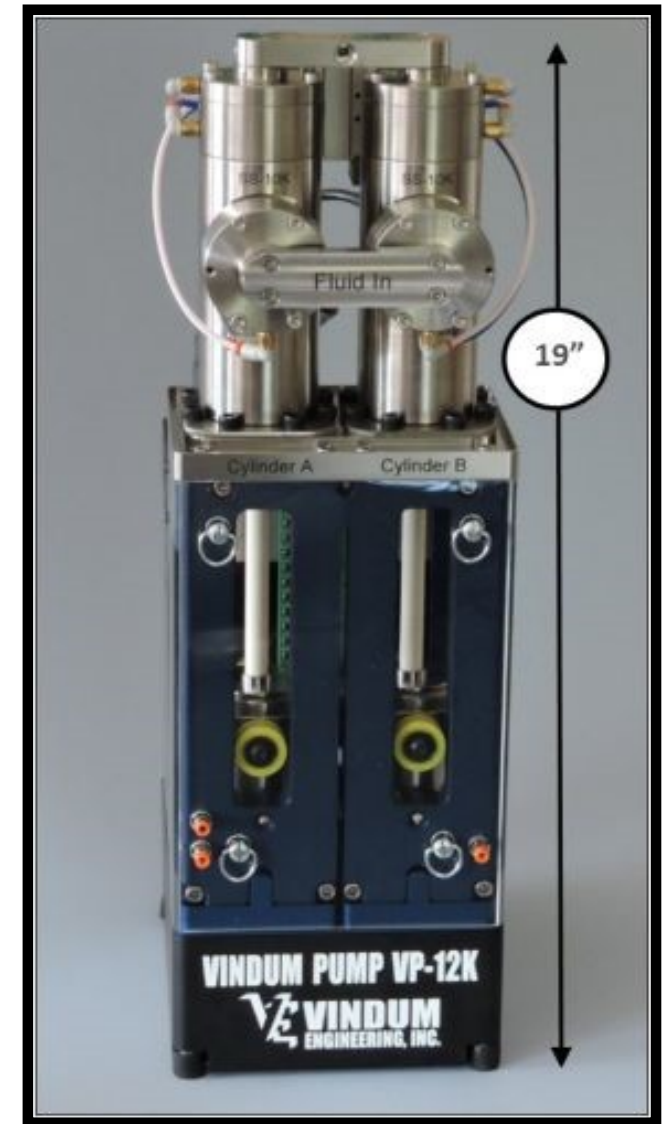


*Patent Pending

VP SERIES HIGH-PRECISION METERING PUMPS

Dual-Cylinder Continuous Pulse-Free Pump

- No need to stop pump to refill
- Dual-Cylinder design provides unlimited volume dispense capability

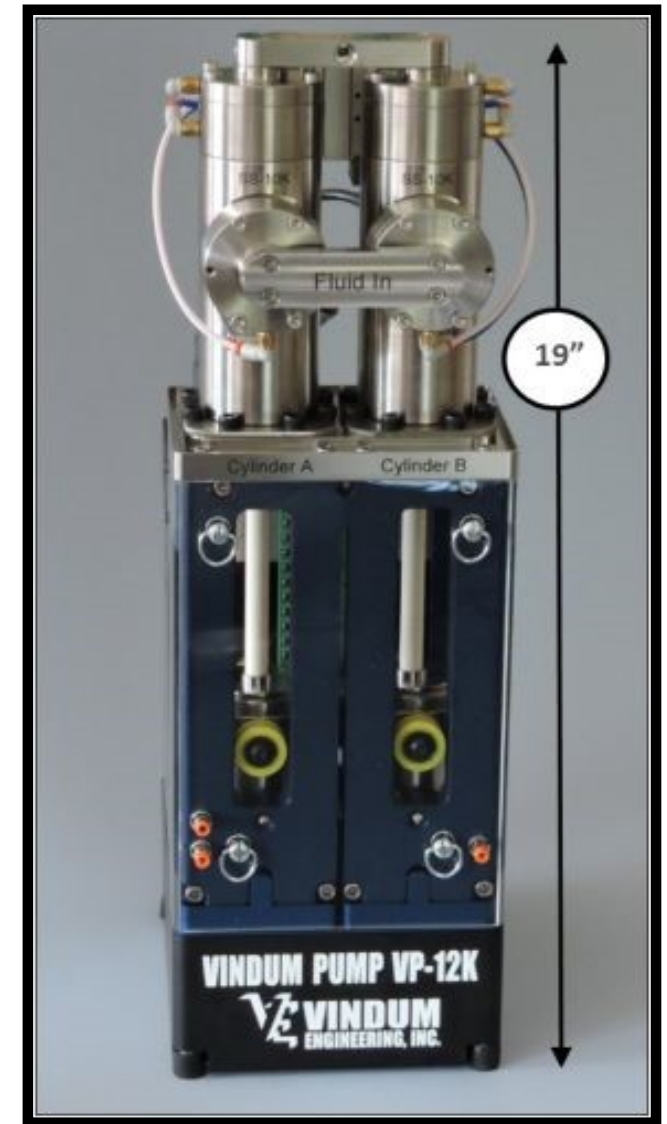


*Patent Pending

VP SERIES HIGH-PRECISION METERING PUMPS

Dual-Cylinder Continuous Pulse-Free Pump

- While one cylinder delivers, the other refills and pressurizes to match the pressure of the active cylinder, ensuring continuous pumping with NO pressure pulse at cylinder switchover.



VP SERIES HIGH-PRECISION METERING PUMPS

Small Footprint

- Ultra-compact design, uses less lab space



(48 cm x 15 cm x 23 cm)



(63 cm x 21 cm x 49 cm)



(43 cm x 67 cm x 30 cm)



(101 cm x 27 cm x 47 cm)

VP SERIES HIGH-PRECISION METERING PUMPS

Highest Accuracy

- Advanced circuitry, ultra-precise motor control and small cylinder volume combine to deliver:
 - 0.000001ml/min flow rate resolution
 - 0.0001 ml/min (or better) minimum flow rate
 - 0.1% (or better) volume accuracy



VP SERIES HIGH-PRECISION METERING PUMPS

Highest Accuracy

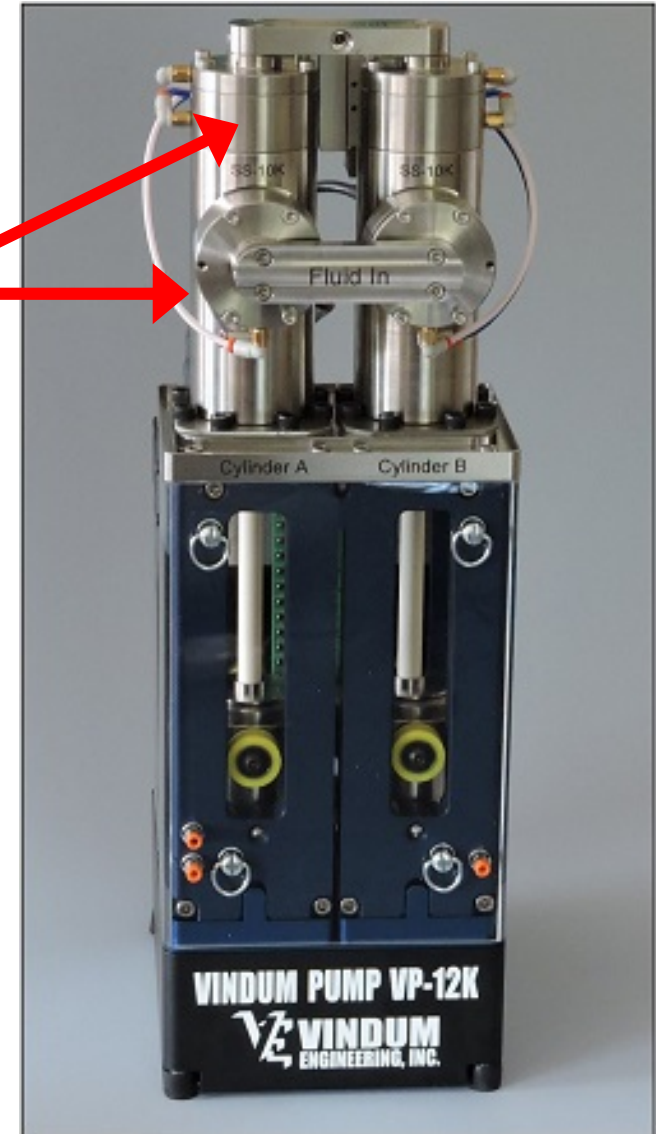
- Advanced circuitry, ultra-precise motor control and small cylinder volume combine to deliver:
 - 0.000001ml/min flow rate resolution
 - 0.0001 ml/min (or better) minimum flow rate
 - 0.1% (or better) volume accuracy



VP SERIES HIGH-PRECISION METERING PUMPS

Highest Accuracy

- Vindum CV valves – STANDARD!



VP SERIES HIGH-PRECISION METERING PUMPS

Highest Accuracy

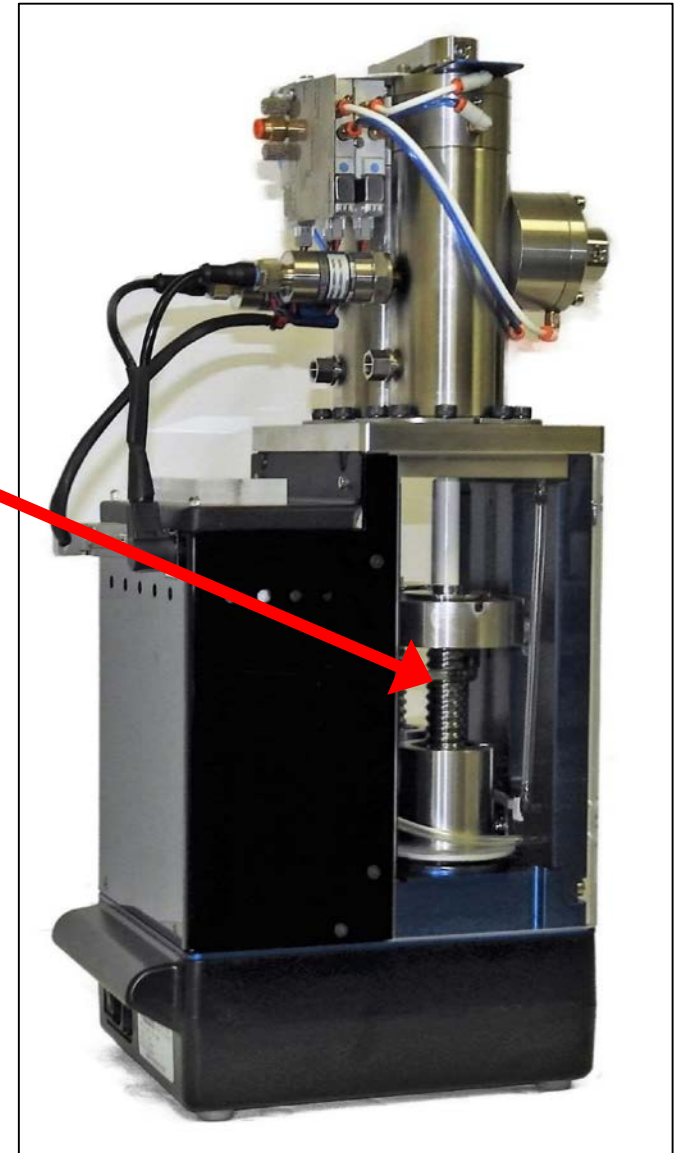
- All-Internal Flow Paths
 - Smaller dead volume
 - No fittings or tubing connections, reduces potential leak points



VP SERIES HIGH-PRECISION METERING PUMPS

Highest Accuracy

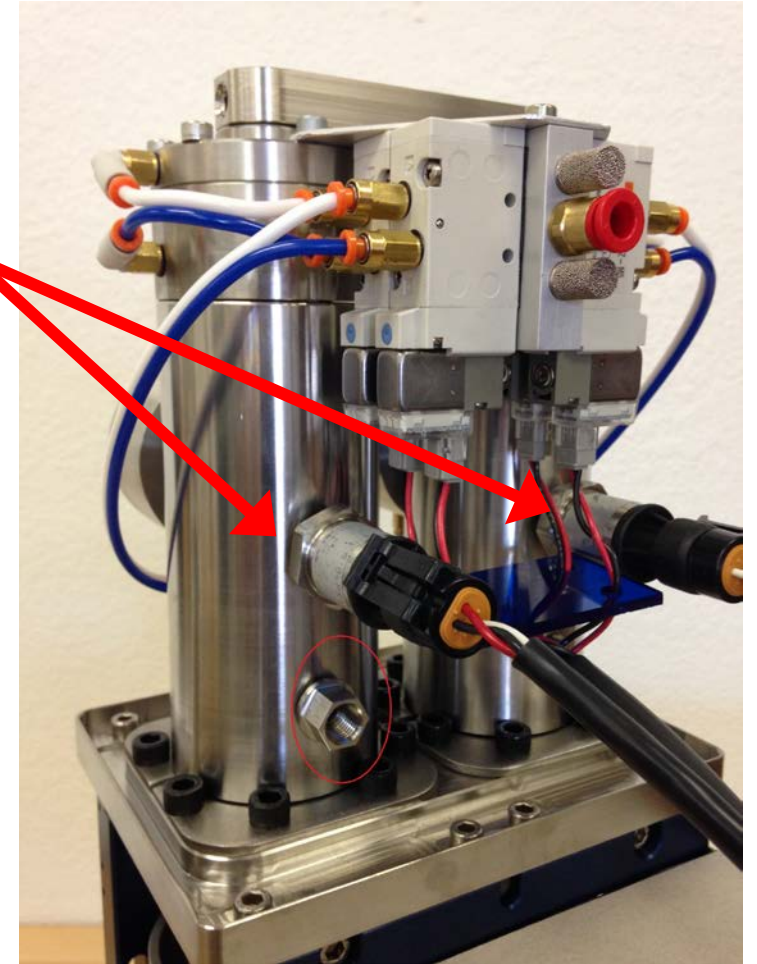
- Ballscrew drive for precision and longevity
- No strings or belts



VP SERIES HIGH-PRECISION METERING PUMPS

Multiple Transducer Options

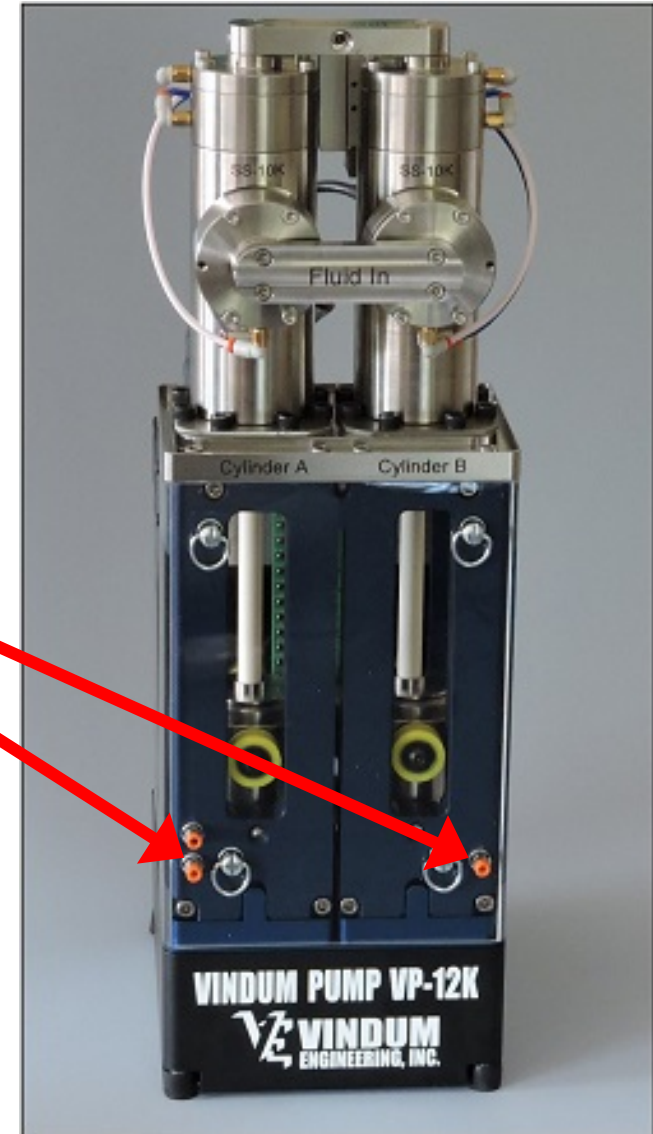
- Select transducers tailored to your working pressure range
- Low-pressure transducers available for very low-pressure operation
- 0.1% error transducers standard



VP SERIES HIGH-PRECISION METERING PUMPS

Safety Built-in

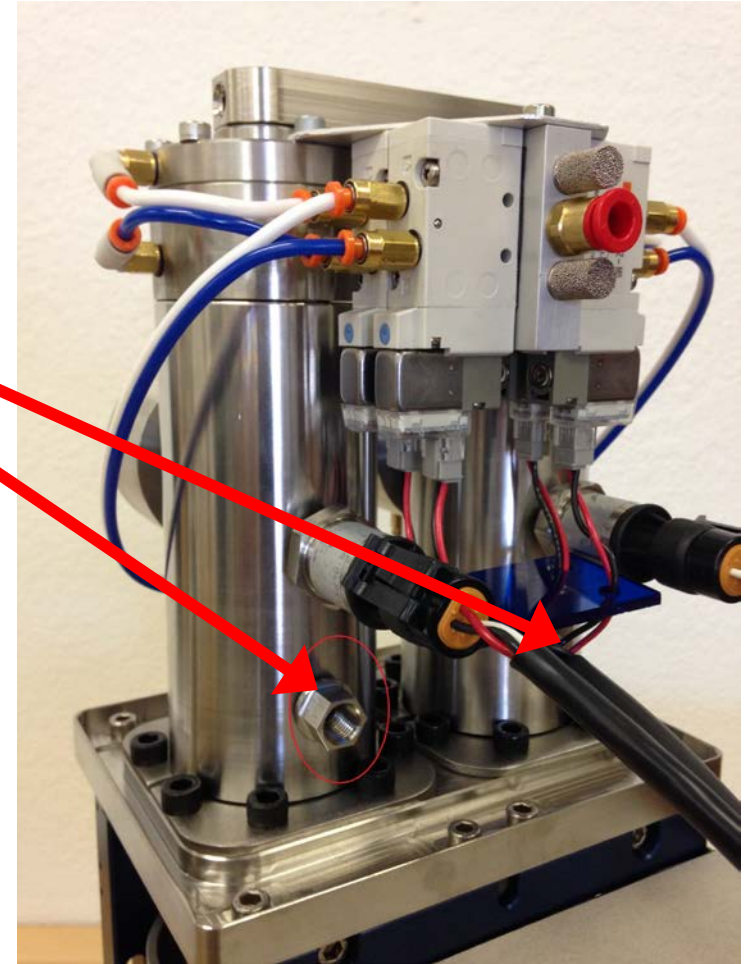
- Cylinder and pump top drain ports
- Leaks drain outside of pump away from electrical components



VP SERIES HIGH-PRECISION METERING PUMPS

Safety Built-in

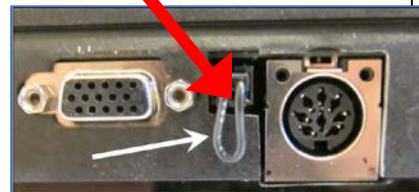
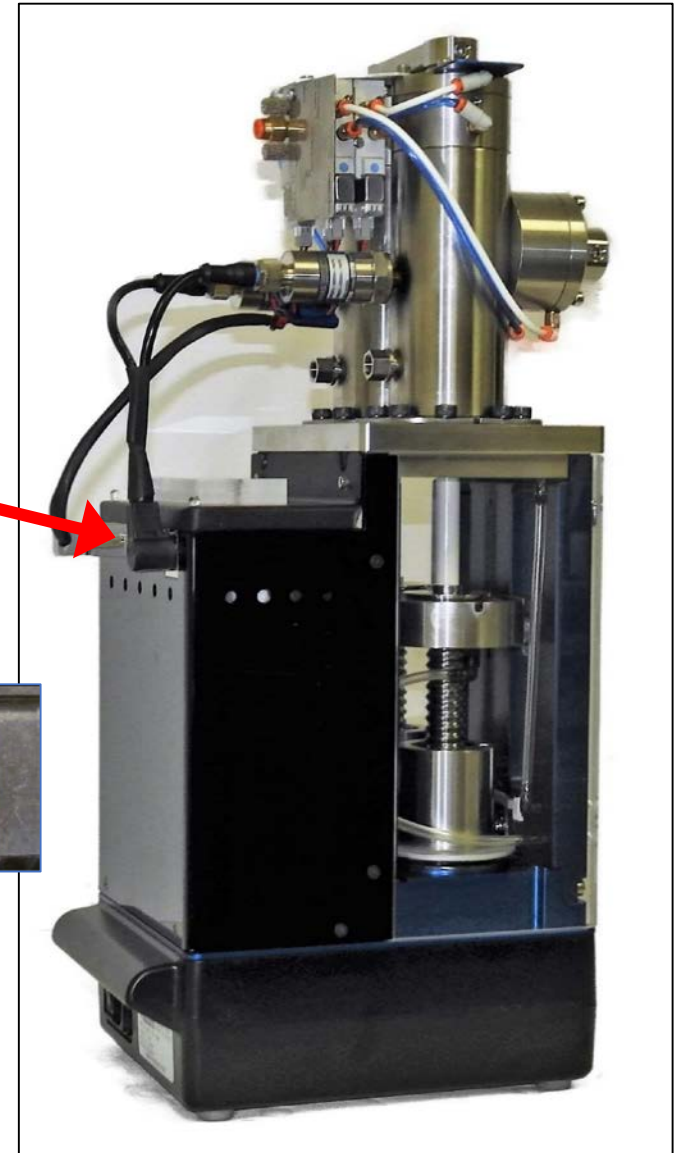
- Integrated Safety Burst Discs on Each Cylinder



VP SERIES HIGH-PRECISION METERING PUMPS

Safety Built-in

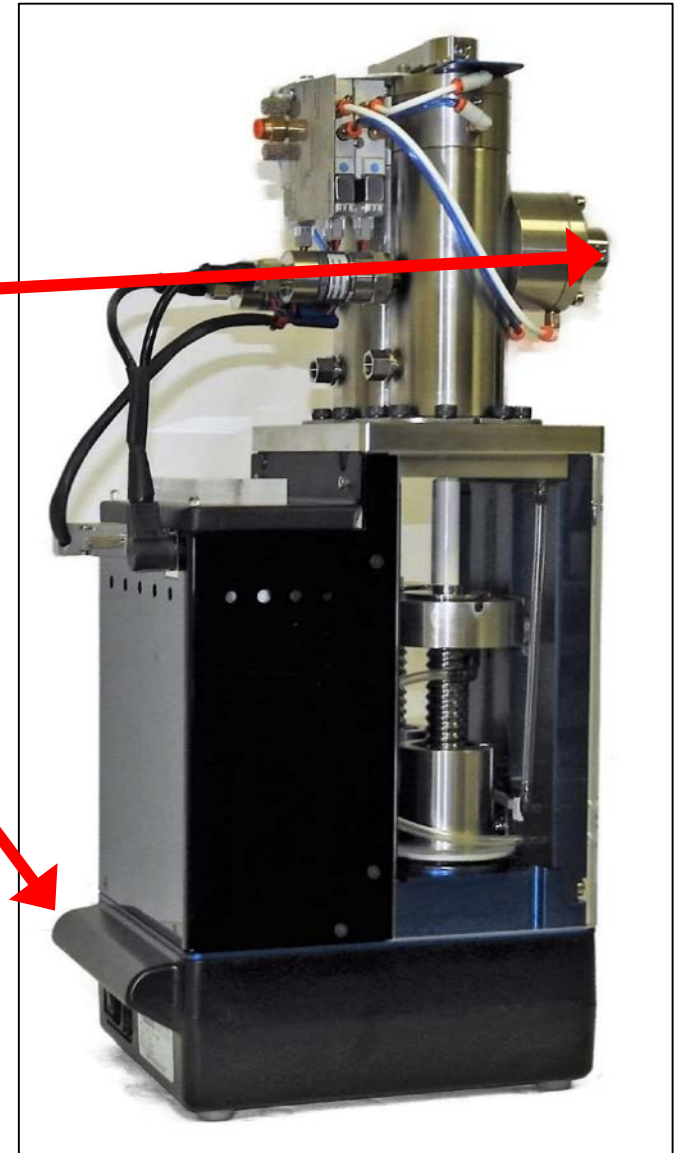
- Wiring for External Emergency Stop Circuit



VP SERIES HIGH-PRECISION METERING PUMPS

Safety Built-in

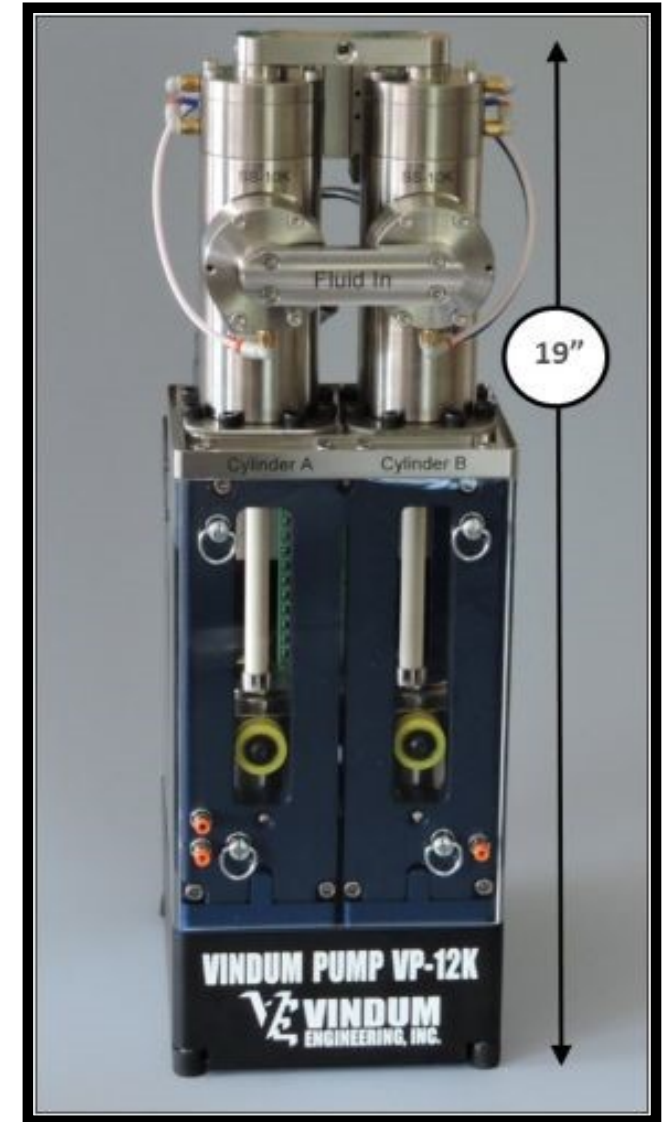
- Integrated handle for portability



VP SERIES HIGH-PRECISION METERING PUMPS

Customer Support

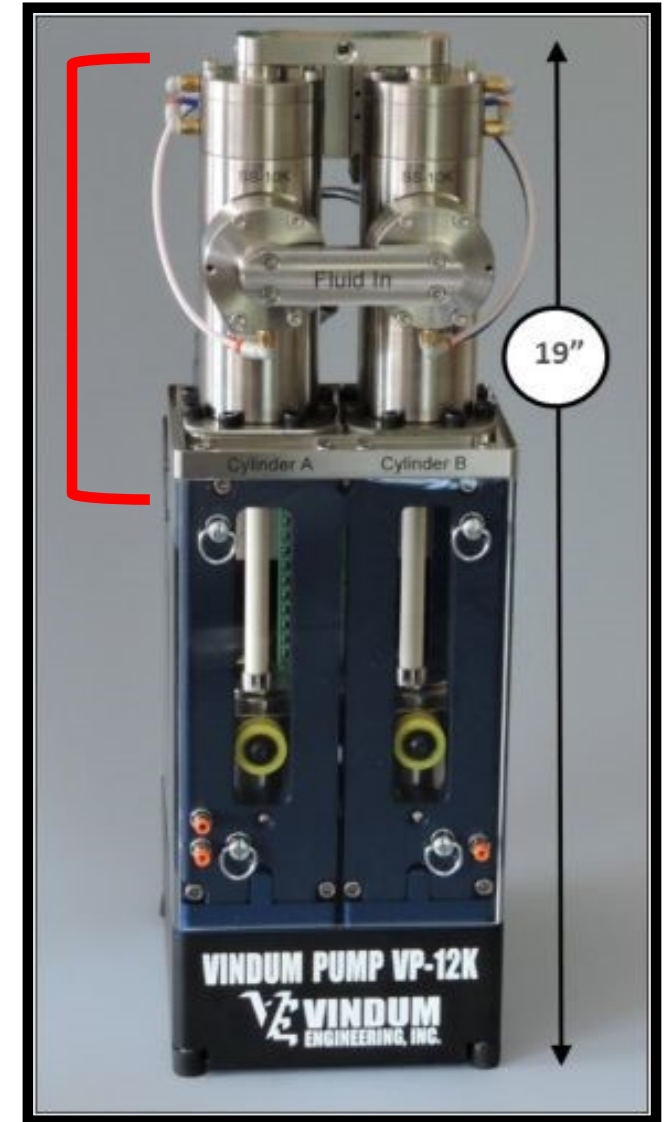
- Modular pump design for easy maintenance & service
- Online video library of routine maintenance tasks to guide users.
- Complimentary training for new users (via Teamviewer)



VP SERIES HIGH-PRECISION METERING PUMPS

Ease of Use

- For easy cleaning of cylinders & flow paths, top unit can be removed with fluid inside



VP SERIES HIGH-PRECISION METERING PUMPS

VPWare Software

- Software included with pump purchase
- Lifetime software updates included

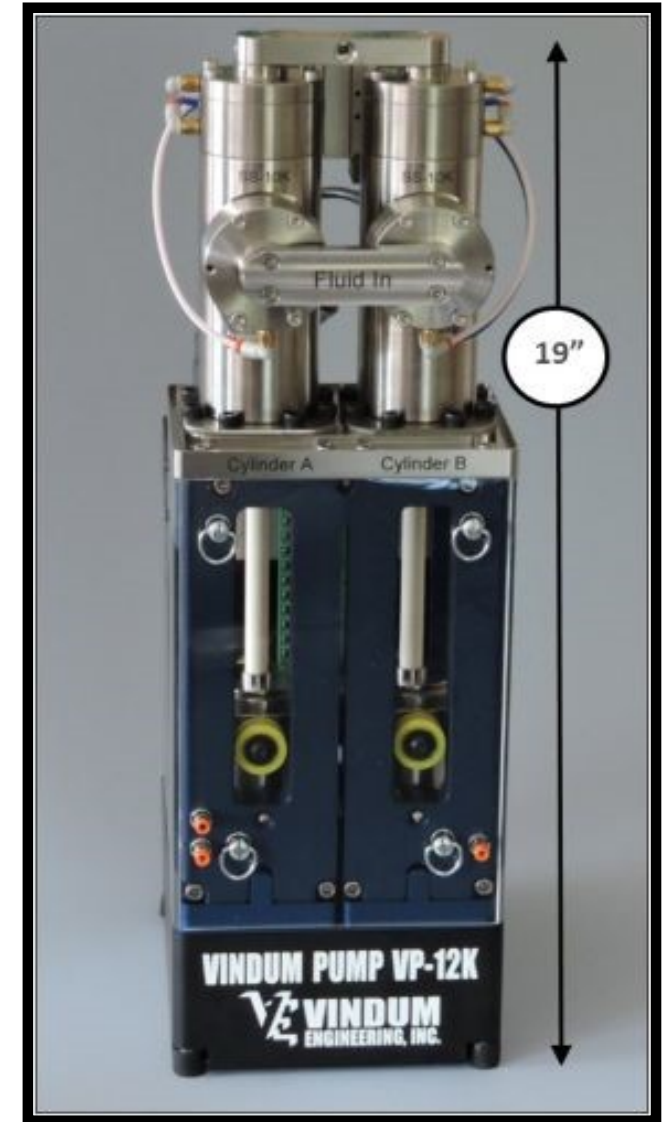
The screenshot displays the 'Pump Control' software interface. The menu bar includes 'File', 'Configure', 'Data Log', 'Status', 'Graphs', 'Scheduler', and 'Tools'. The main panel is divided into two columns. The left column lists various parameters and controls, while the right column shows the corresponding values and control buttons for 'Pump 1'.

Parameter/Control	Value/Action
Pump Name	Pump 1
Pressure (psi)	1,841.2
Rate (ml/min)	9.00000
Cylinder	Stop A, B Stop
Deliver Valve	Red X, Green X
Fill Valve	Red X, Red X
Piston direction	Up arrows
Stop All (Alt+A)	Red Stop button
Motion Status	Rate Delvr.- Continuous
Set Piston Direction	Extend buttons
Mode	PRD dropdowns
Rate (ml/min)	0.00746, 9.00000
Set Rate (ml/min)	9.0000, 9.0000
Pressure (psi)	1,844.3, 1,841.2
Set Pressure (psi)	Empty fields
Safety Pressure (psi)	5,000, 5,000
Pumped Volume (ml)	-5.7551, 4.6420
Reset Cyl. Volume	Reset A, Reset B
Cum. Volume (ml)	10.244
Reset Cum. Volume	Reset Cumulative

VP SERIES HIGH-PRECISION METERING PUMPS

VPWare Software

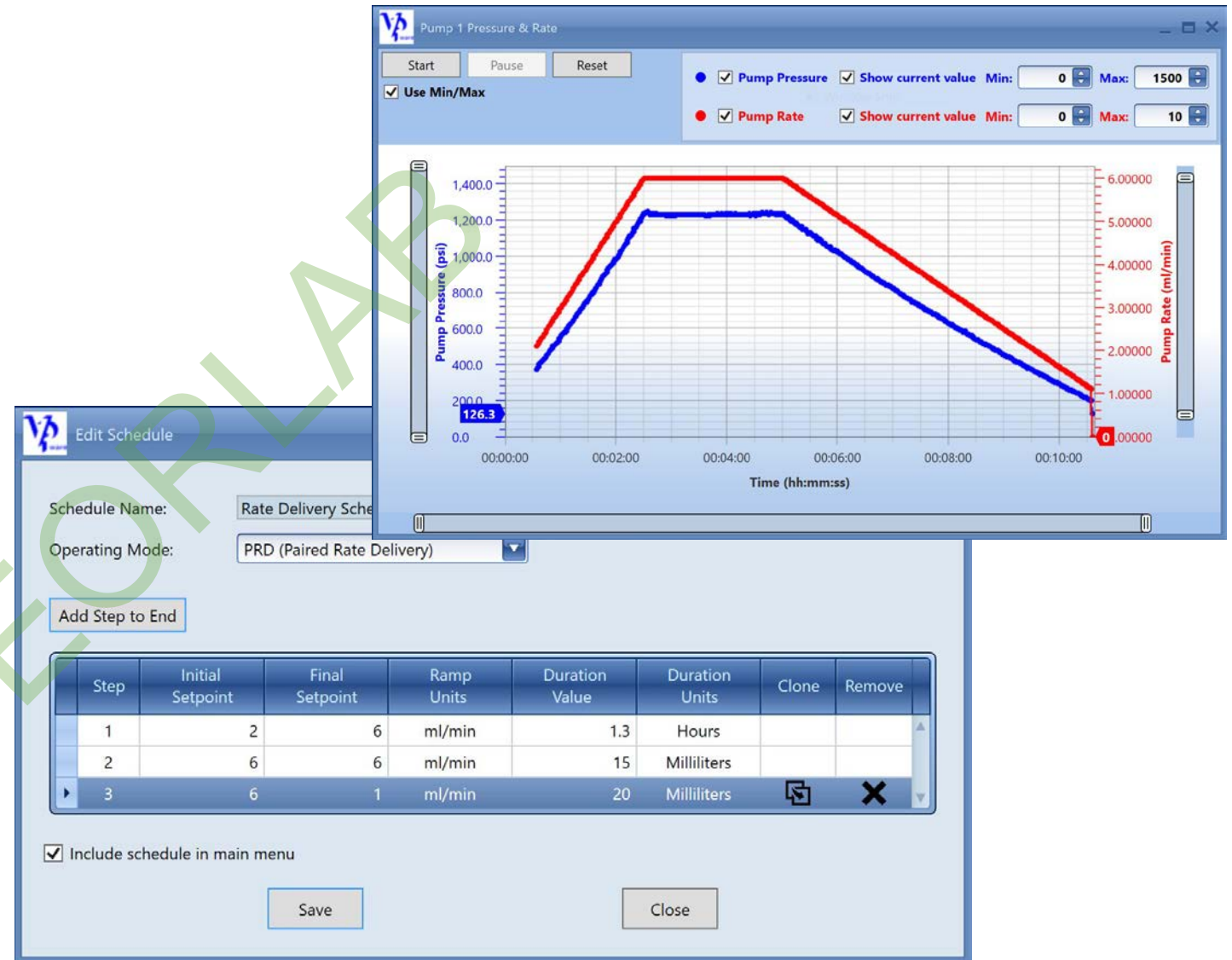
- 13 Operating modes
 - Constant-Pressure
 - Constant-Rate
 - Delta Pressure
 - Recirculation Modes



VP SERIES HIGH-PRECISION METERING PUMPS

VPWare Software

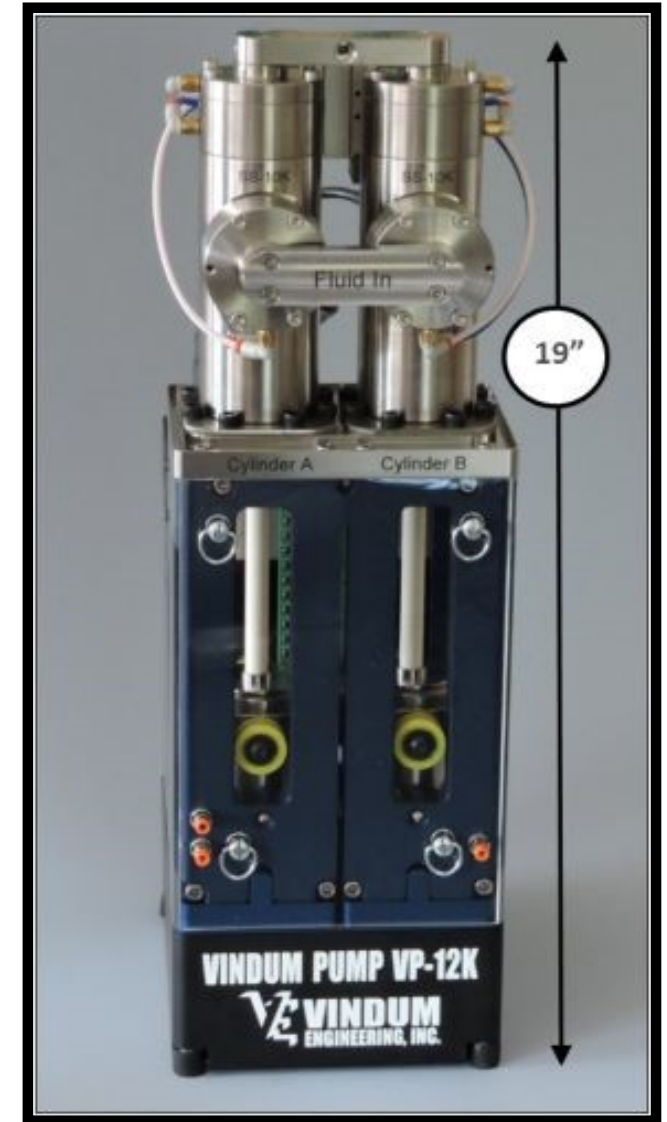
- Real-time
 - Graphing
 - Data Logging
- Scheduler Function
 - Rate
 - Pressure
 - Ramping



VP SERIES HIGH-PRECISION METERING PUMPS

VPWare Software

- Unique control features:
 - Pressure following
 - Auto-Prime
 - Pump Group
 - Recirculation (2-phase & 3-phase)
 - Volume dispense mode
 - Control up to 16 pumps on one computer

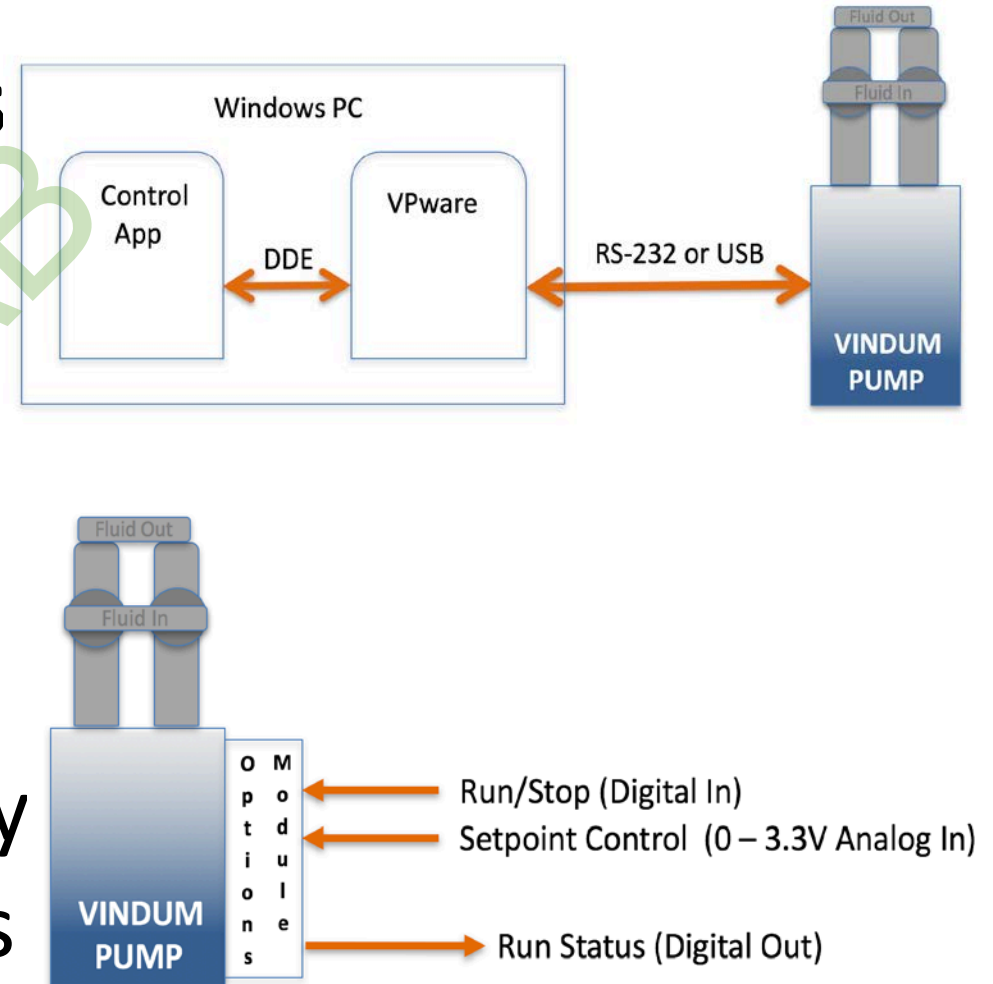


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VP SERIES HIGH-PRECISION METERING PUMPS

Multiple Pump Control Options

- VPWare software (included)
- Labview VI driver (included)
- PLC control capability
- Binary communication control
- DDE – Dynamic Data Exchange
- DLL – Dynamically Linked Library
- Analog/Digital Inputs & Outputs



VP SERIES HIGH-PRECISION METERING PUMPS

New High Temperature Option

- Up to 160C
 - Heat ALL wetted parts
 - Eliminate volumetric error from thermal expansion and contraction
 - Oven, heating mantle or cooling jacket compatible



VP SERIES HIGH-PRECISION METERING PUMPS



High-Temperature VP-12K

VP-12K

VP-SERIES PUMP MODELS

<u>Model</u>	<u>Max Pressure</u>	<u>Min/Max Flow Rate</u>	<u>Options*</u>
VP-3K	3,500 psi	0.0001 - 97 ml/min	SS or HC, HT
VP-6K	6,500 psi	0.0001 - 54 ml/min	SS or HC, HT
VP-12K	12,000 psi	0.0001 - 29 ml/min	SS or HC, HT
VP-20K	20,000 psi	0.0001 - 13 ml/min	SS or HC

* SS - Stainless Steel
HC – Hastelloy (for corrosive fluids)
HT- High Temperature (up to 160°C)

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