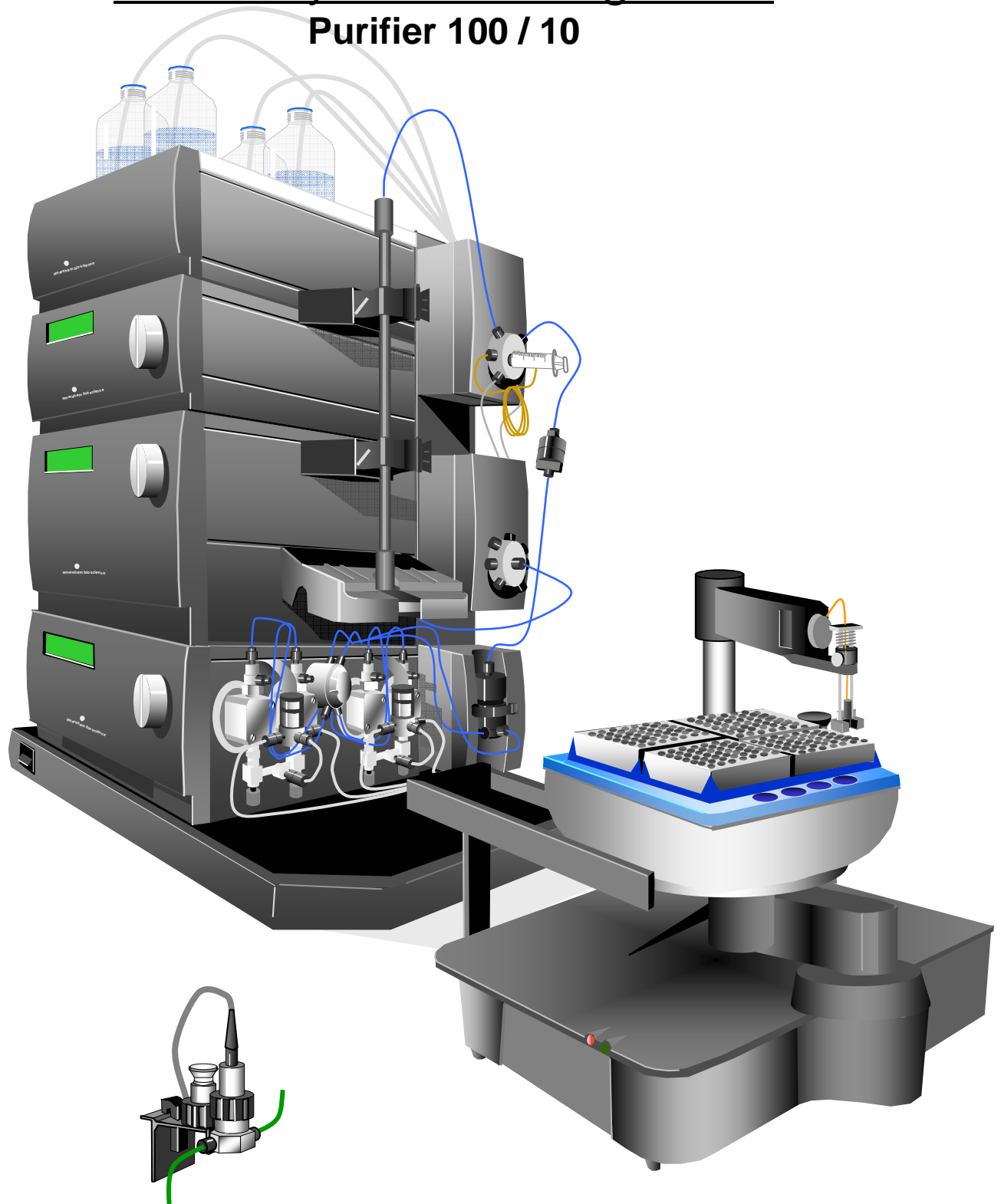
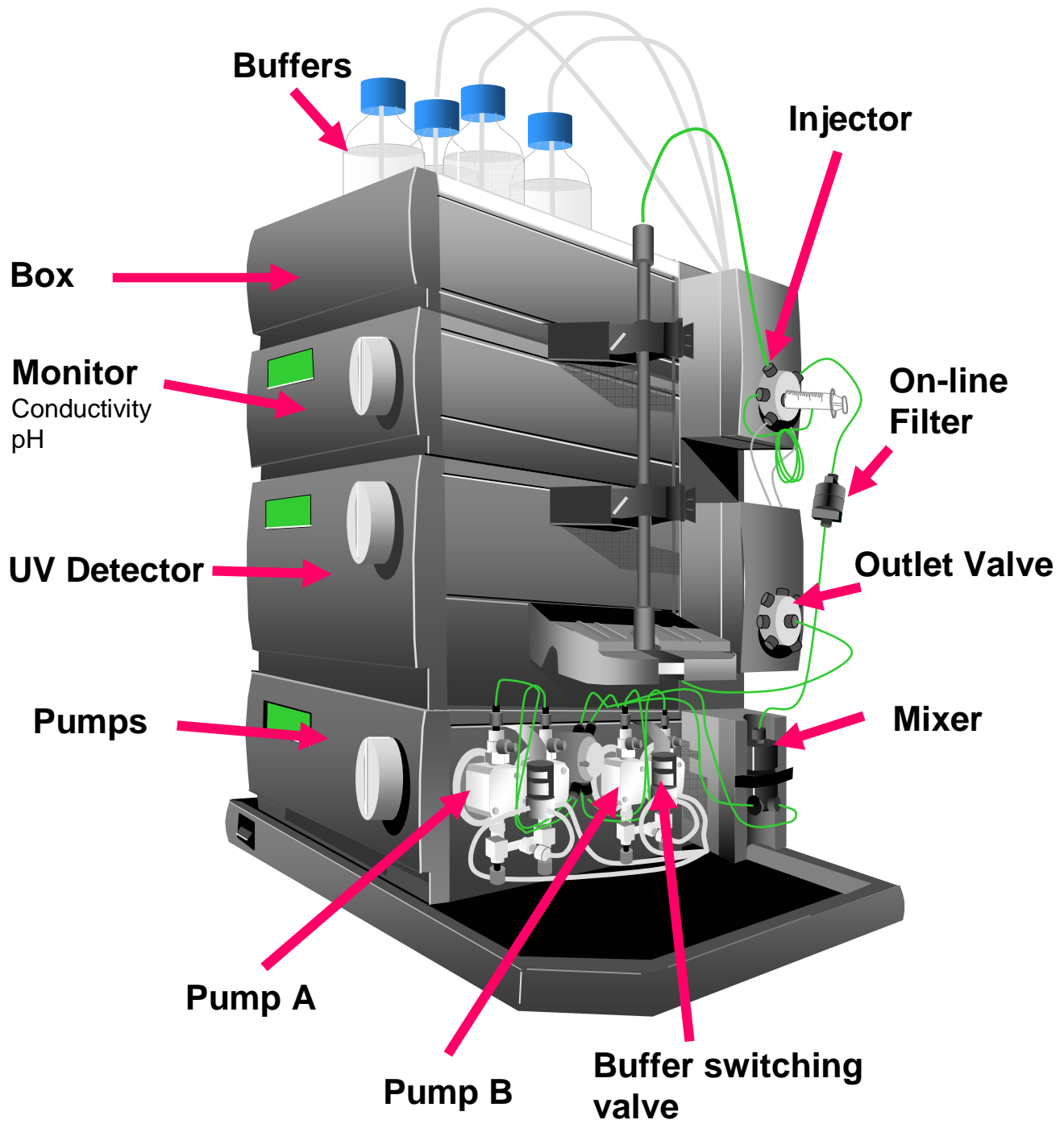


# ÄKTA system Training Guide

## Purifier 100 / 10

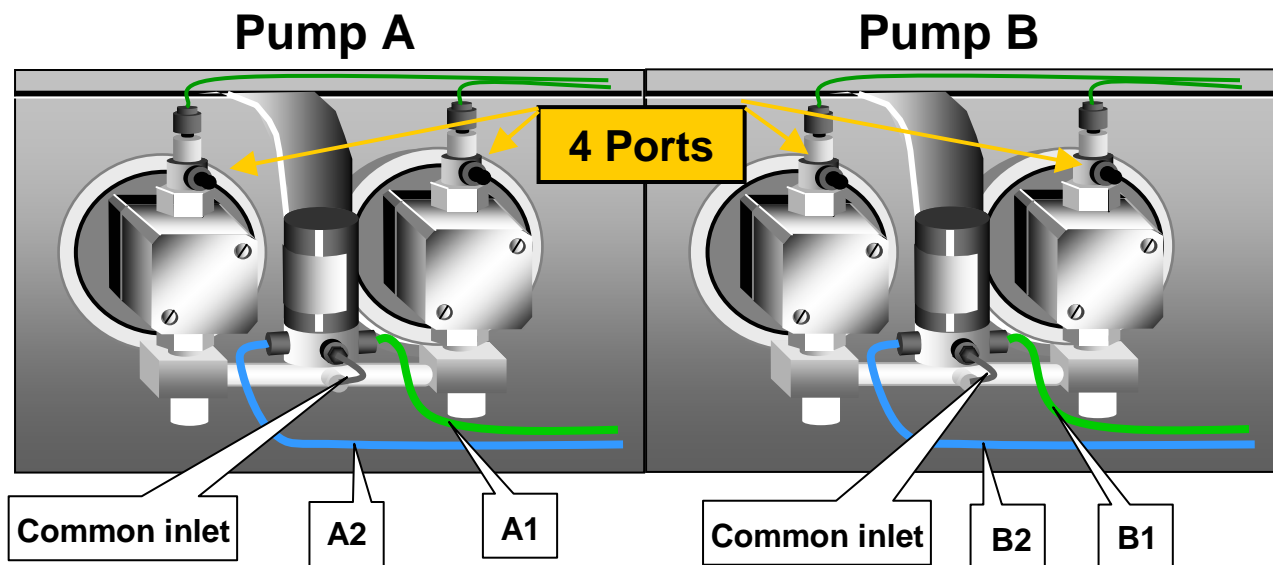


# ÄKTApurifier

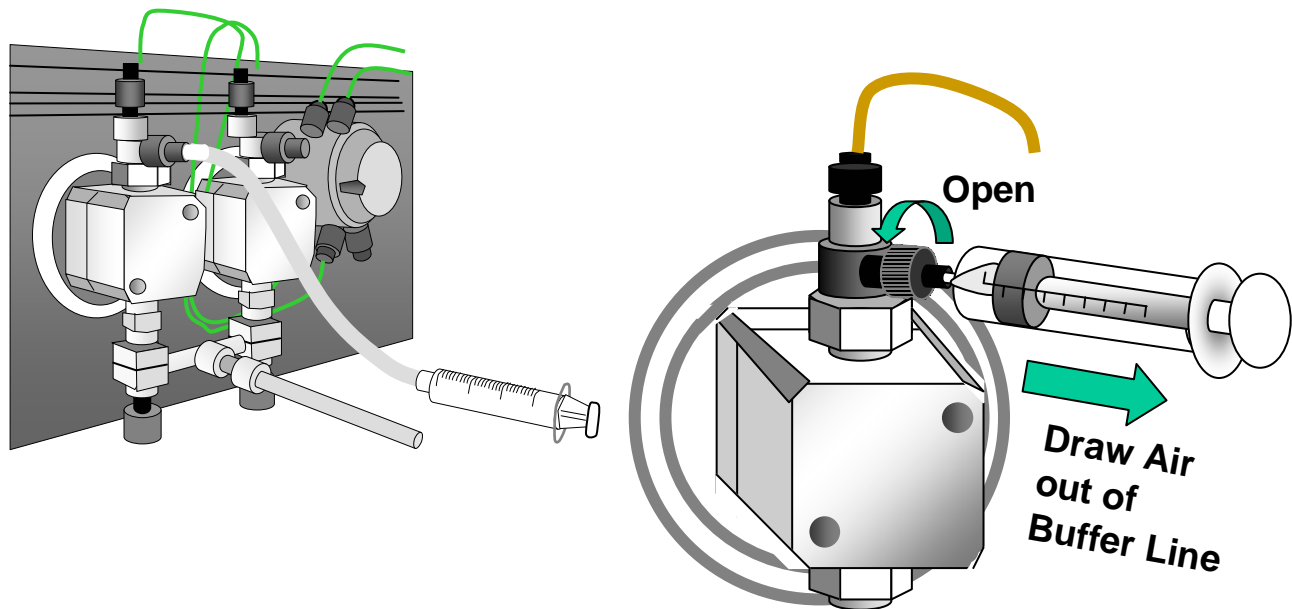


# Maintenance

## Manually Priming Buffer Inlet Lines

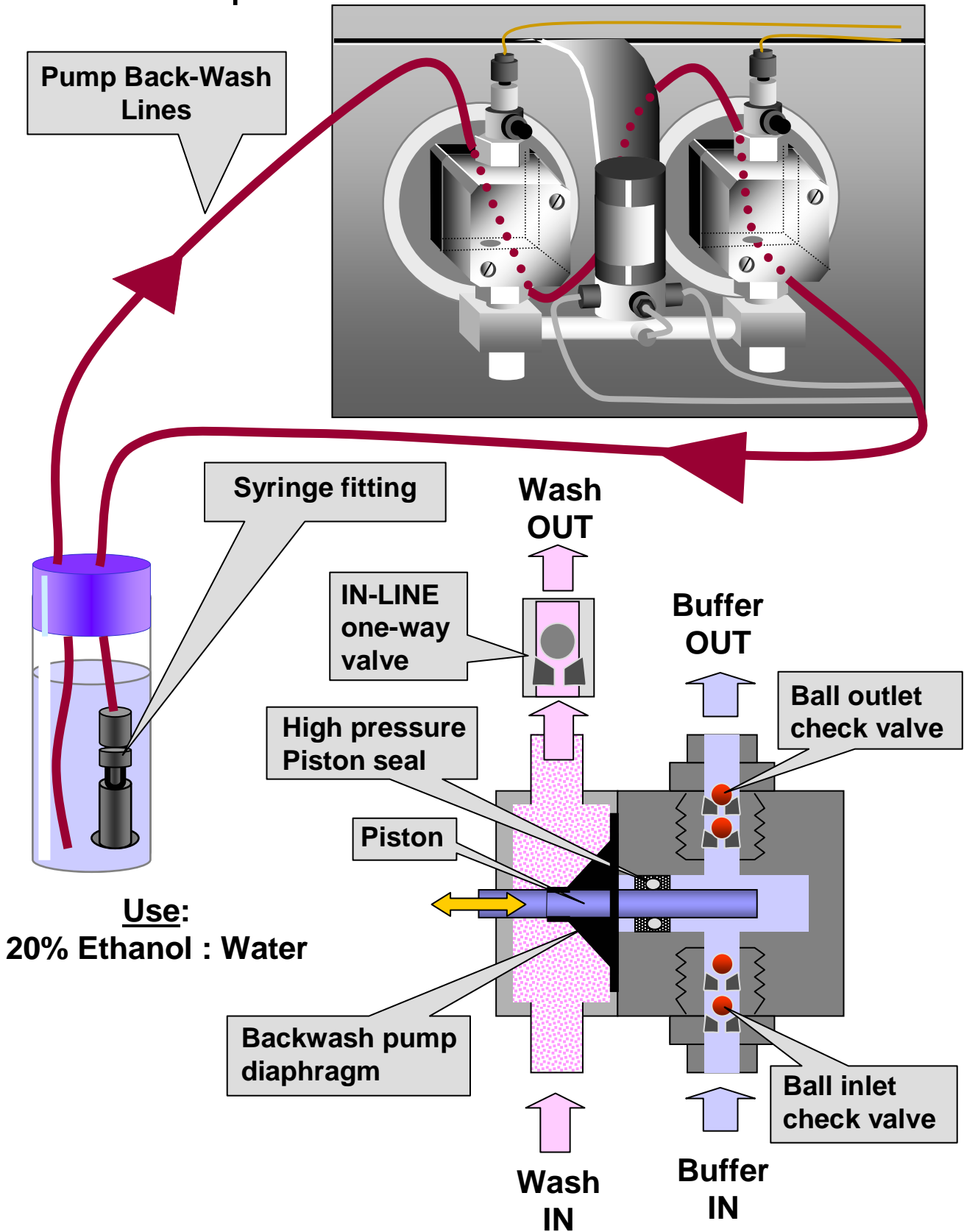


- \*Go to System Control Window
- \*Manual
- \*Choose: Flowpath/ BufferValveA A1 or A2  
Flowpath/ BufferValveB B1 or B2  
**For each line you will use**
- \*Draw Air from **ALL** 4 ports

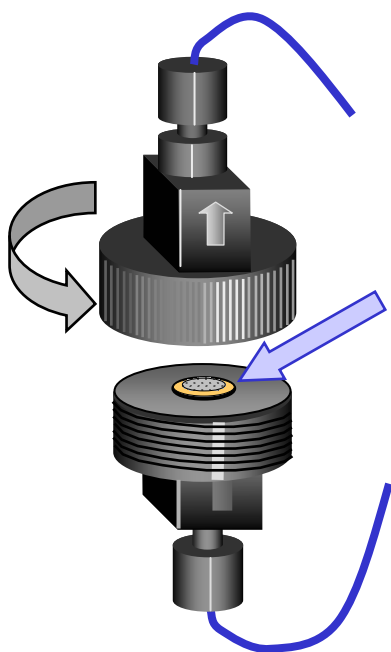


# Maintenance

## Pump P-900 Back - Wash Lines

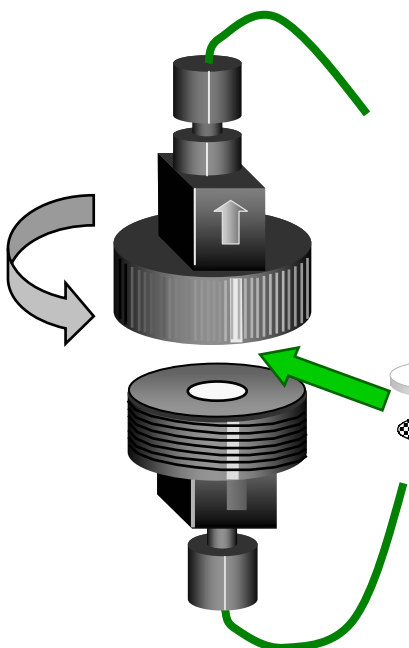


# Maintenance On-Line Filters



**\* Low Flow HPLC Filter  
( For 10 ml/min systems )  
Part # 18-1120-94**

**\*To clean the titanium filter  
simply drop the piece in a  
beaker of 0.1 N NaOH with  
stirring overnight or  
sonicate for  $\geq 30$  min.**

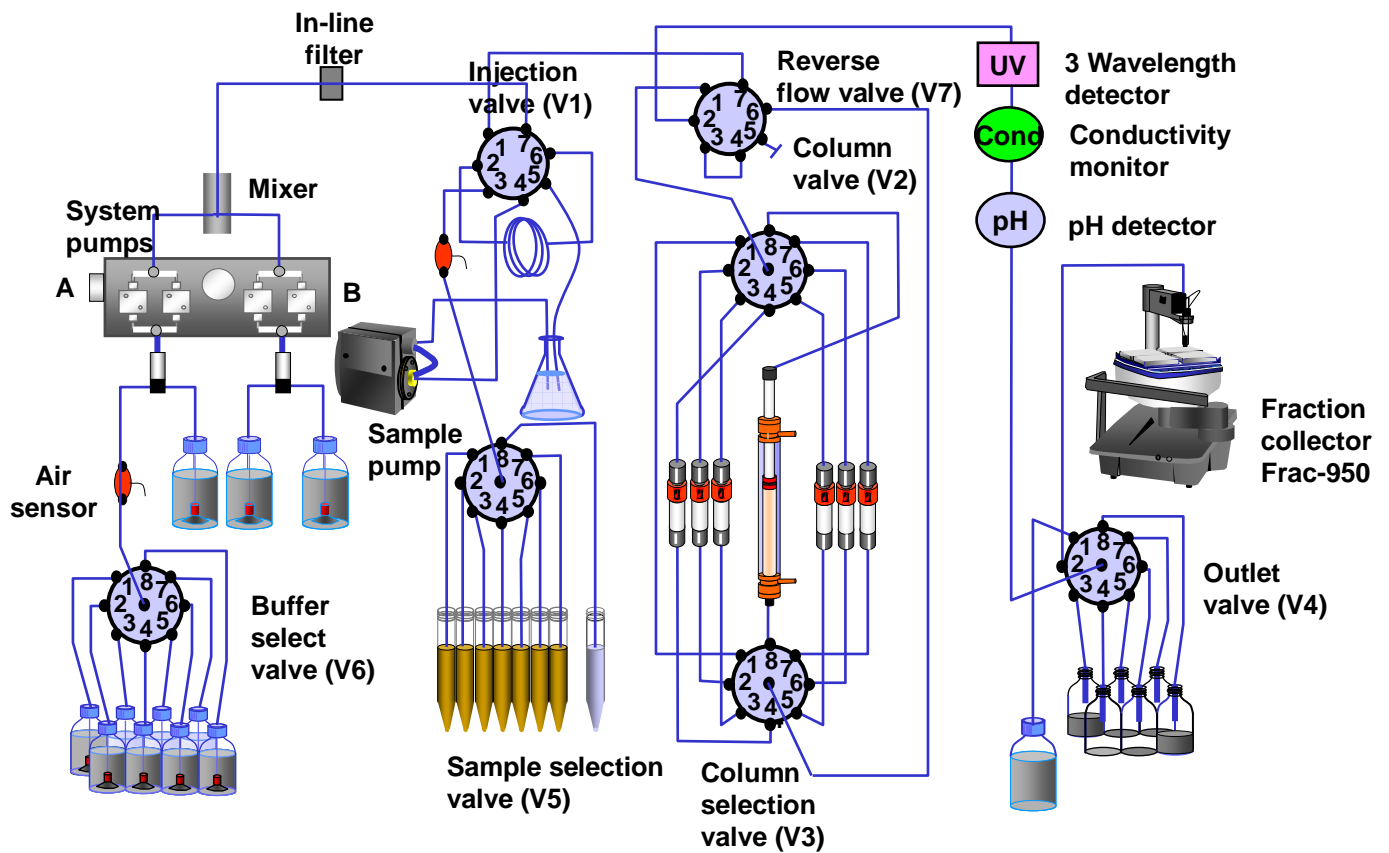


**\*Replace the filter on a regular basis.**

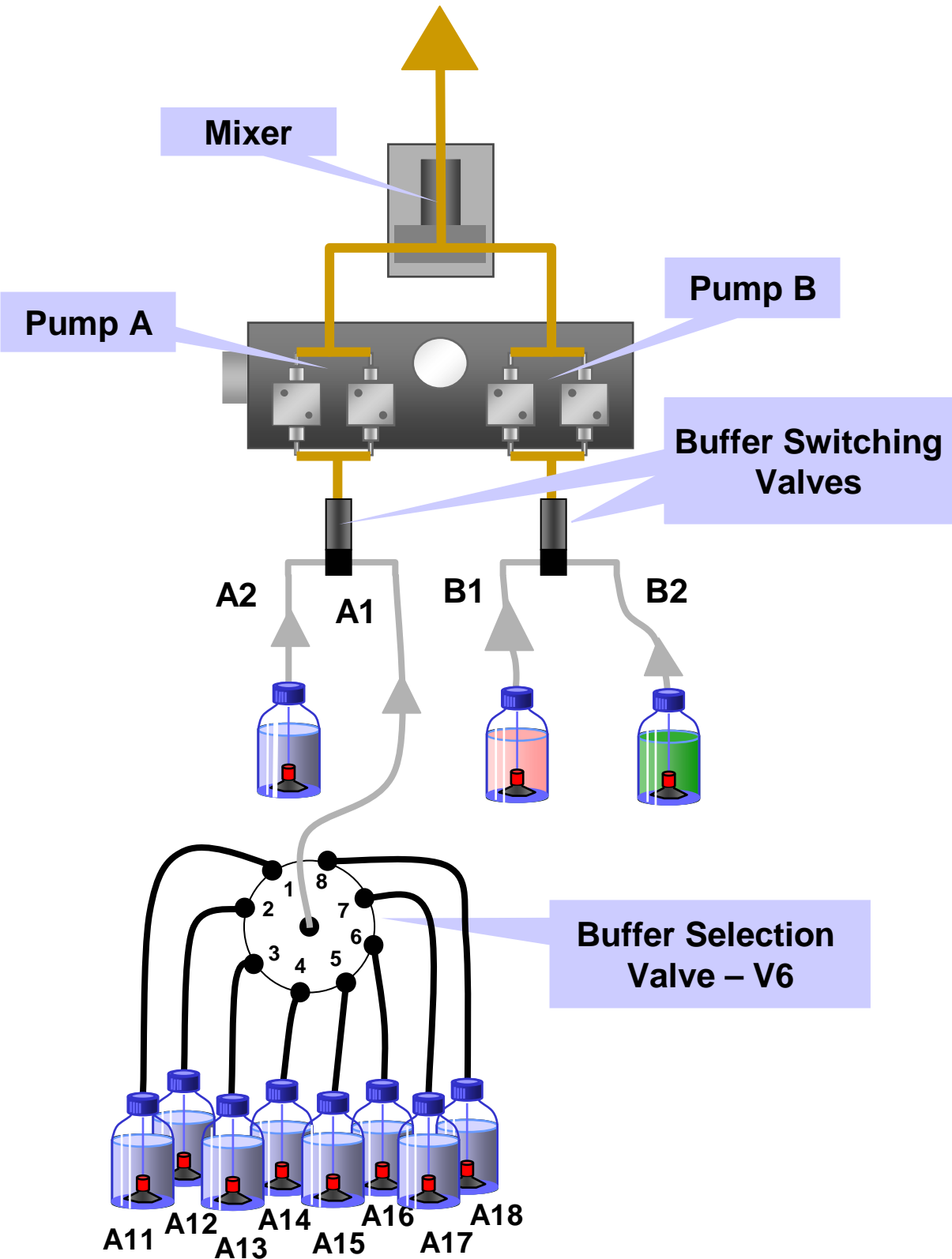
**\* High Flow Fiber Filter  
( For 100 ml/min systems )  
Kit Part # 18-1027-11**

**Polymer Support**

# Optional/Additons to the Flow Path for the ÄKTA Purifier

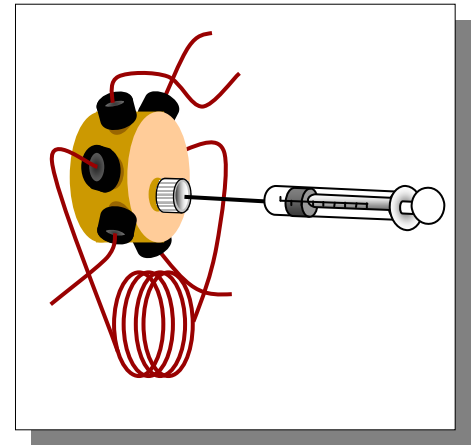
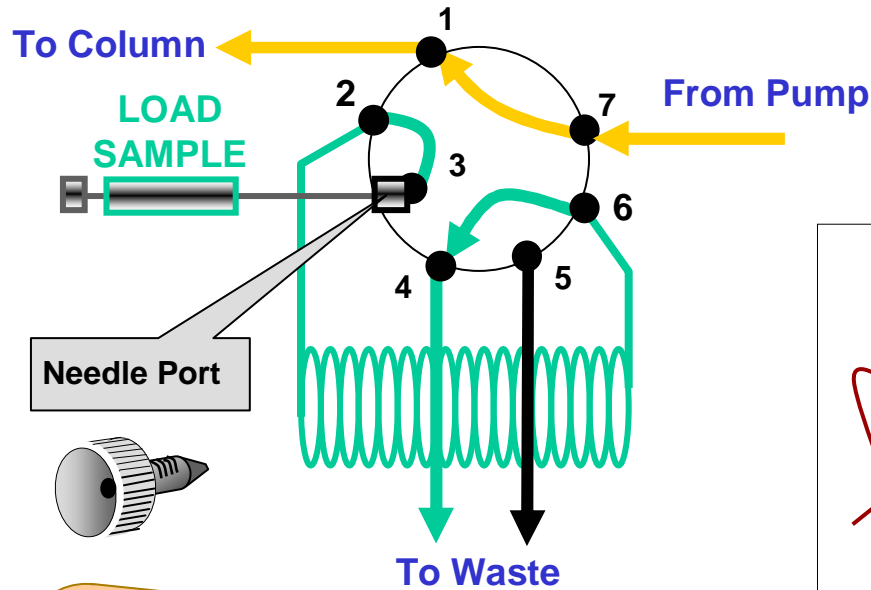


# Buffer Selection Valve



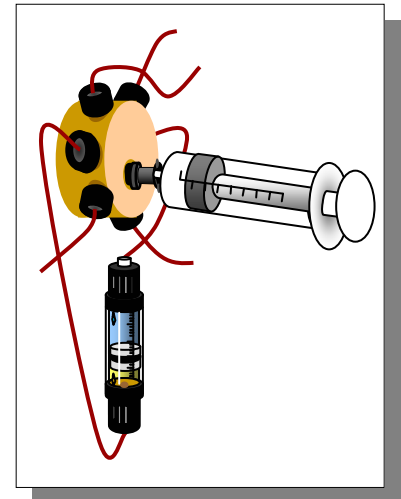
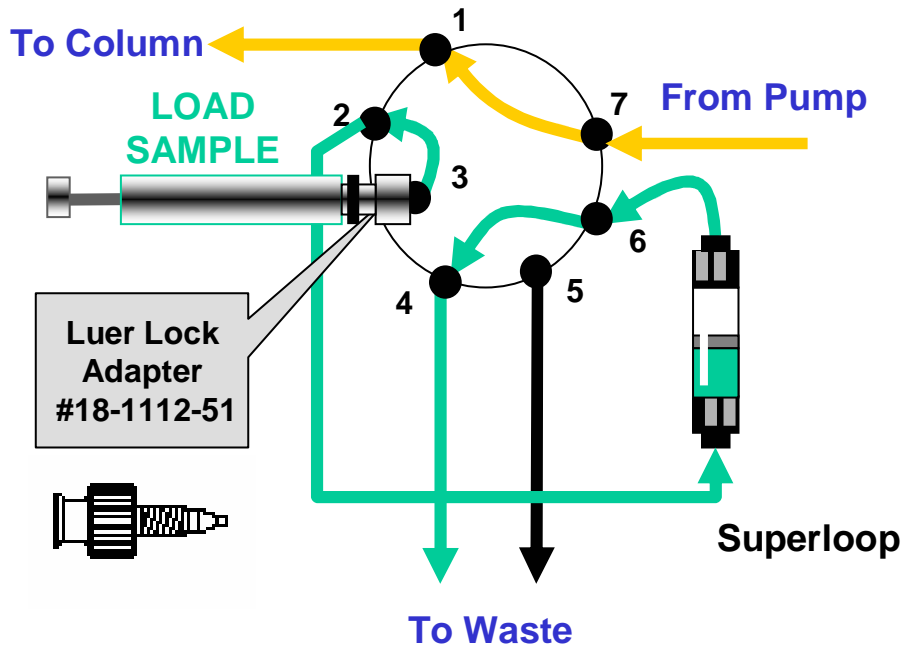


# SAMPLE LOADING METHOD

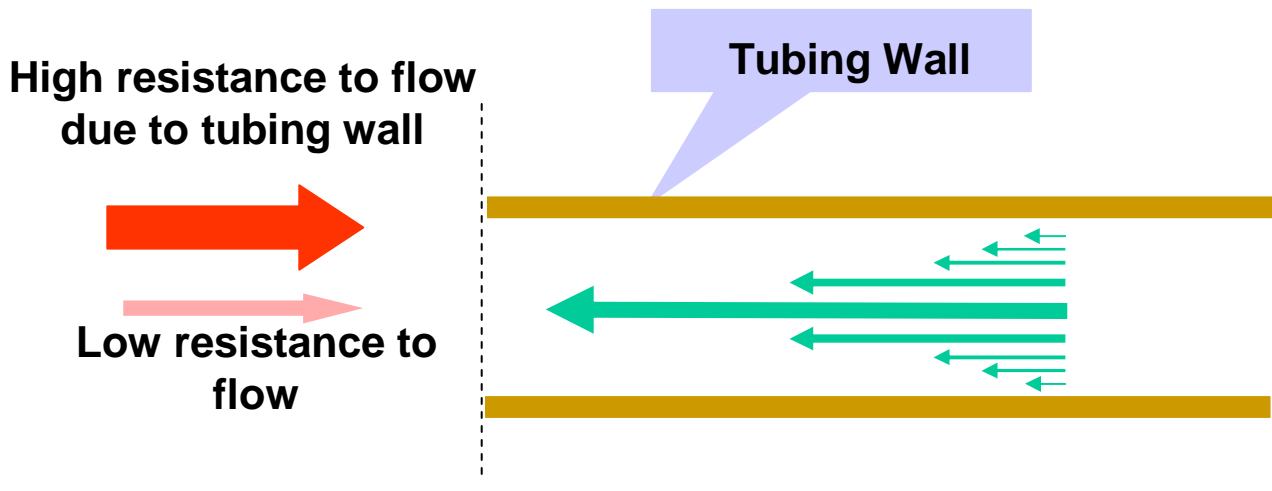
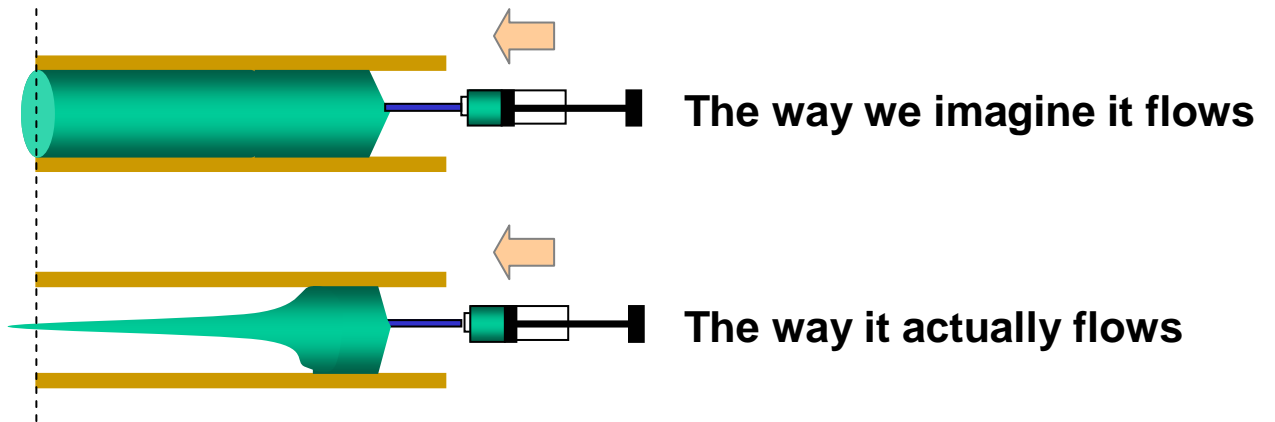


Always tighten by hand with needle inserted

**Do Not Overtighten**



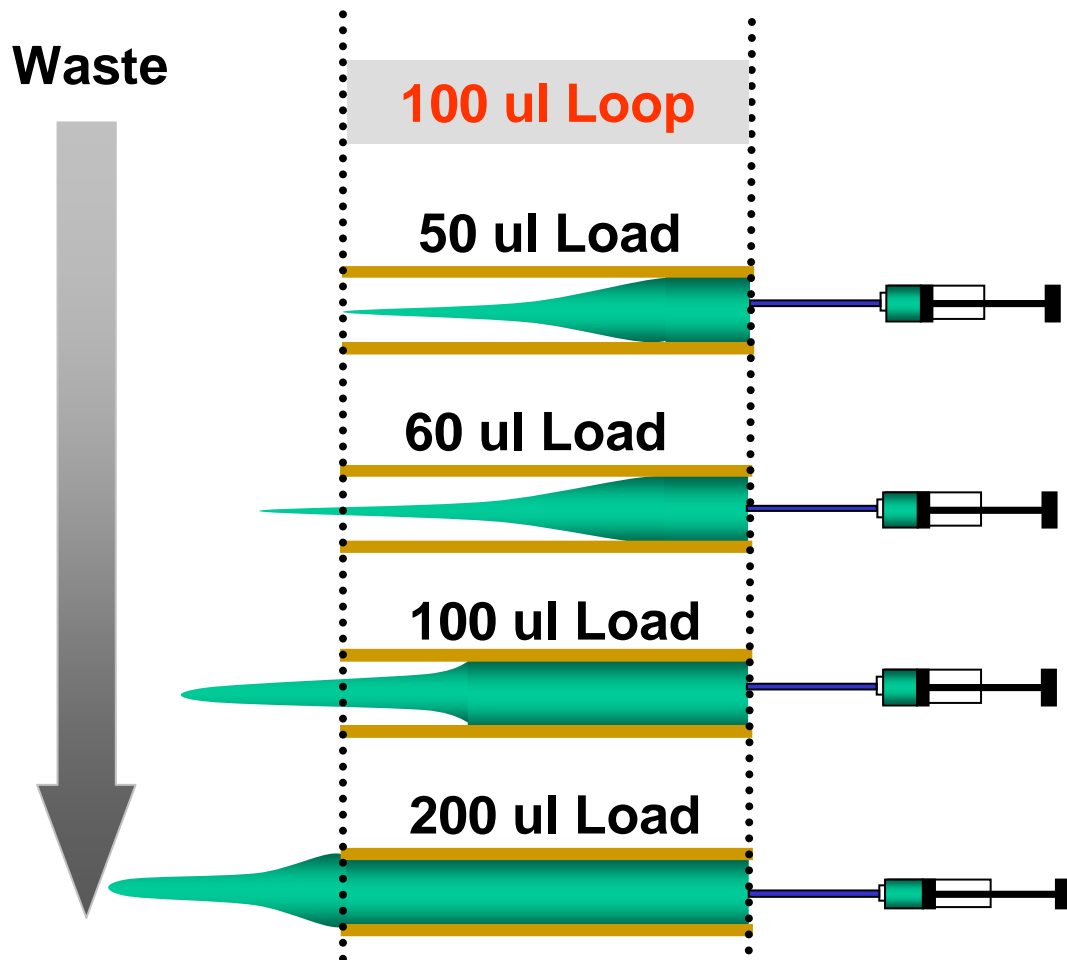
# Fluid Dynamics 101



- This diagram best describes the usefulness of:
- 1) System compensation volumes &
  - 2) Gradient delays during a run.

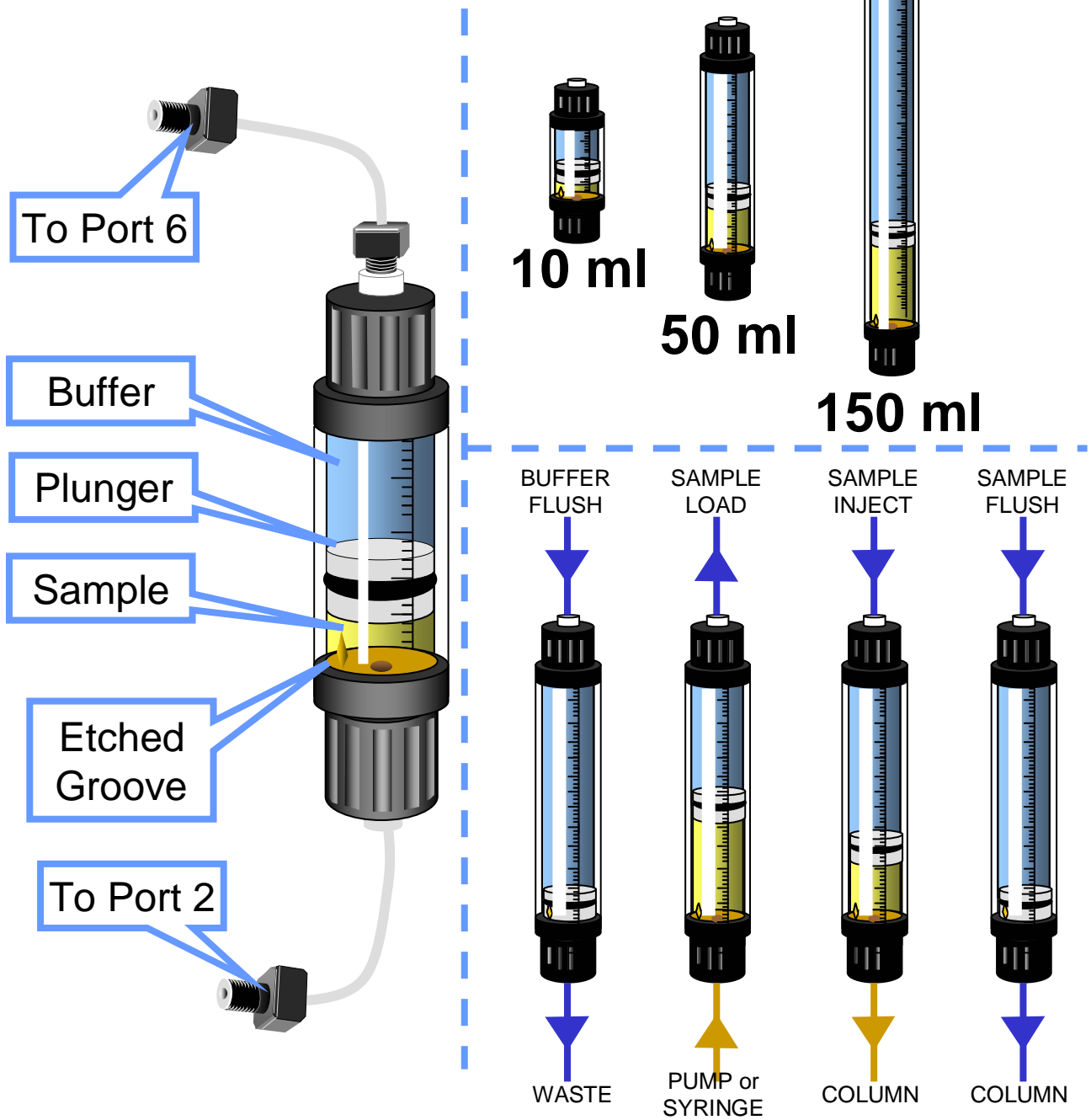
# Fluid Dynamics 101, Cont.

## Injecting onto a 100 ul Loop



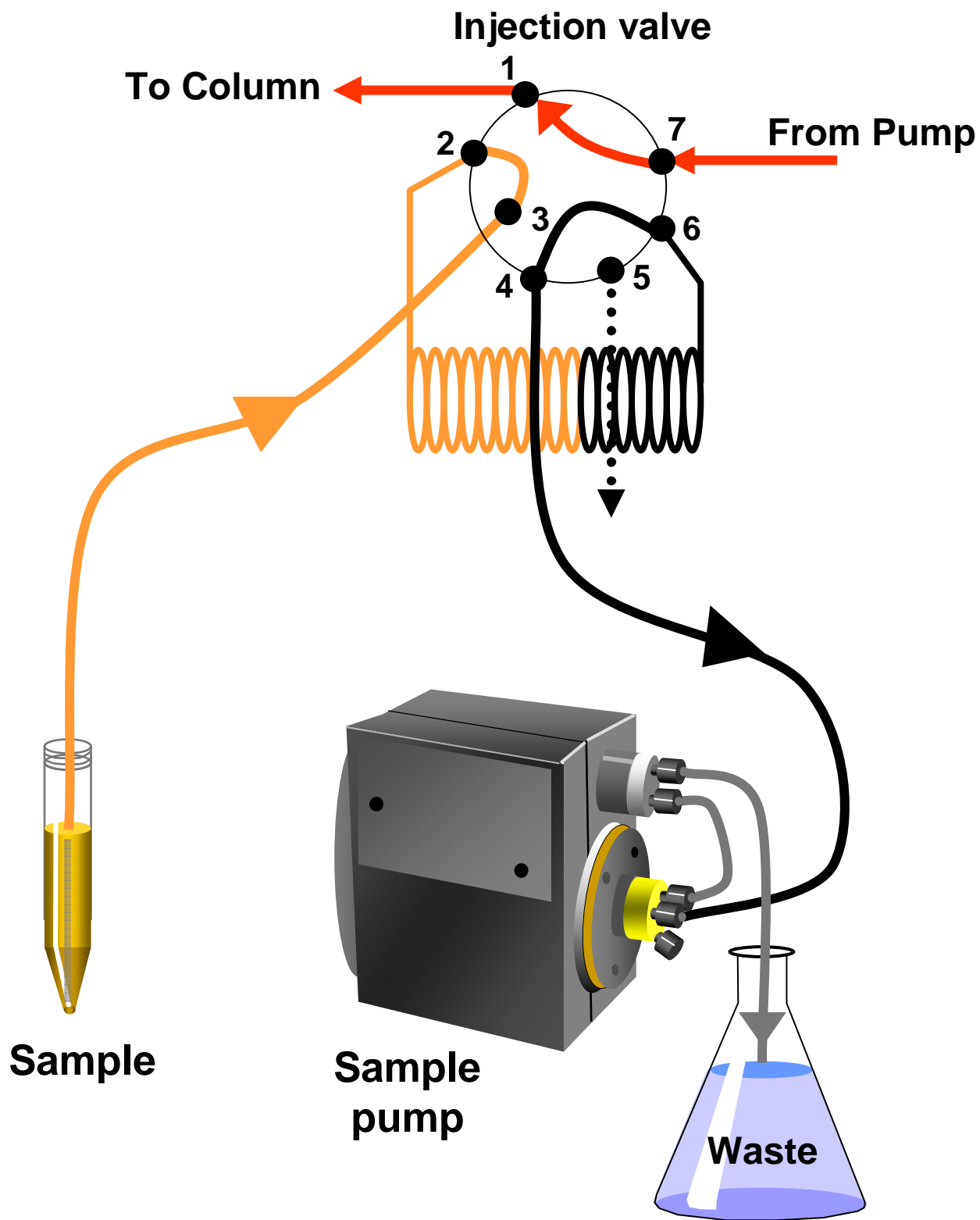
- **Partial Loading Loop = No more than 1/2 Loop Volume**
- **Total Loading Loop = Inject  $\geq$  2X Loop Volume**

# Superloops

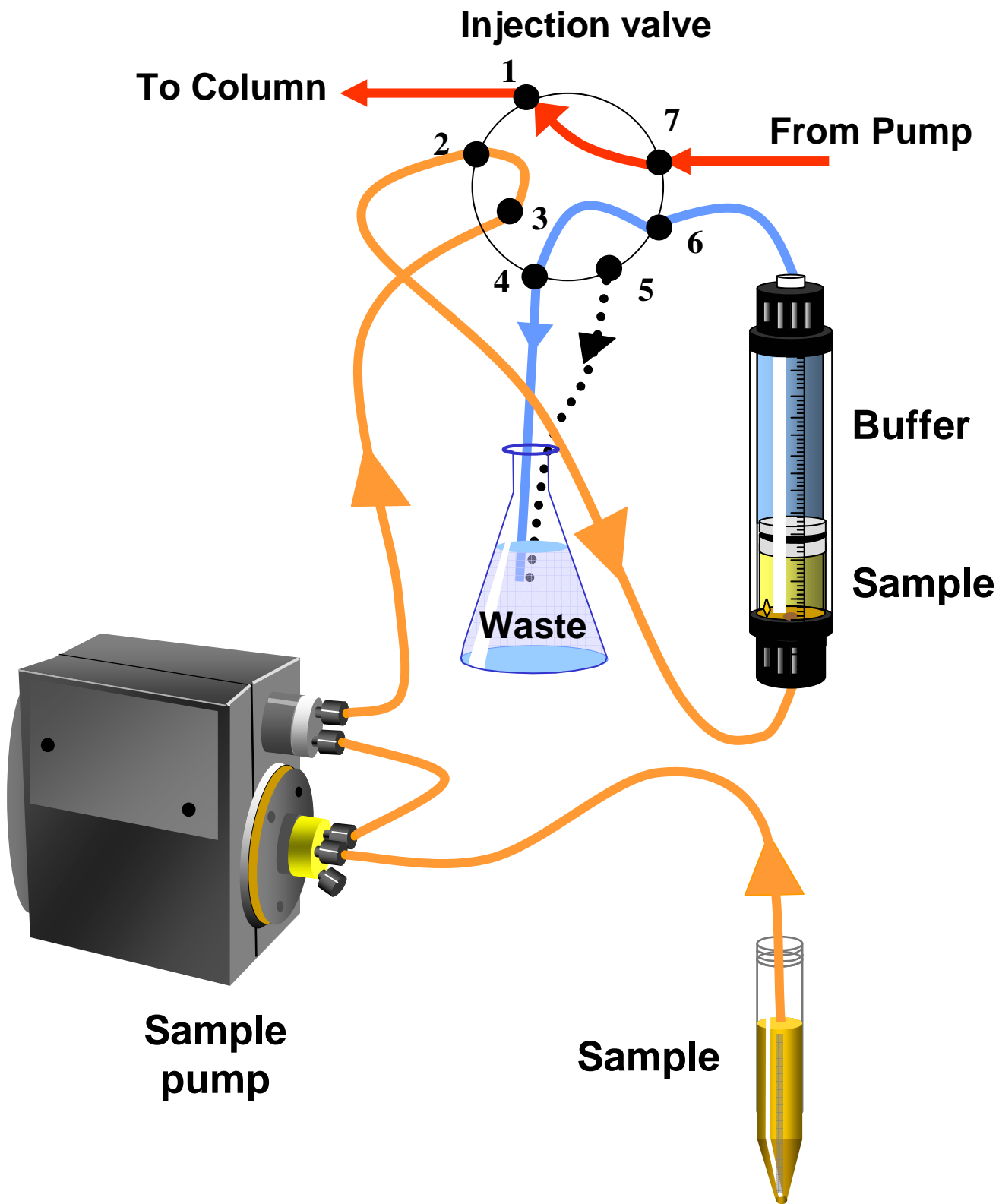


Volume	Max. Allowed Pressure	Code #
10 ml	4 Mpa	18-1113-81
50 ml	4 Mpa	18-1113-82
150 ml	2 Mpa	18-1023-85

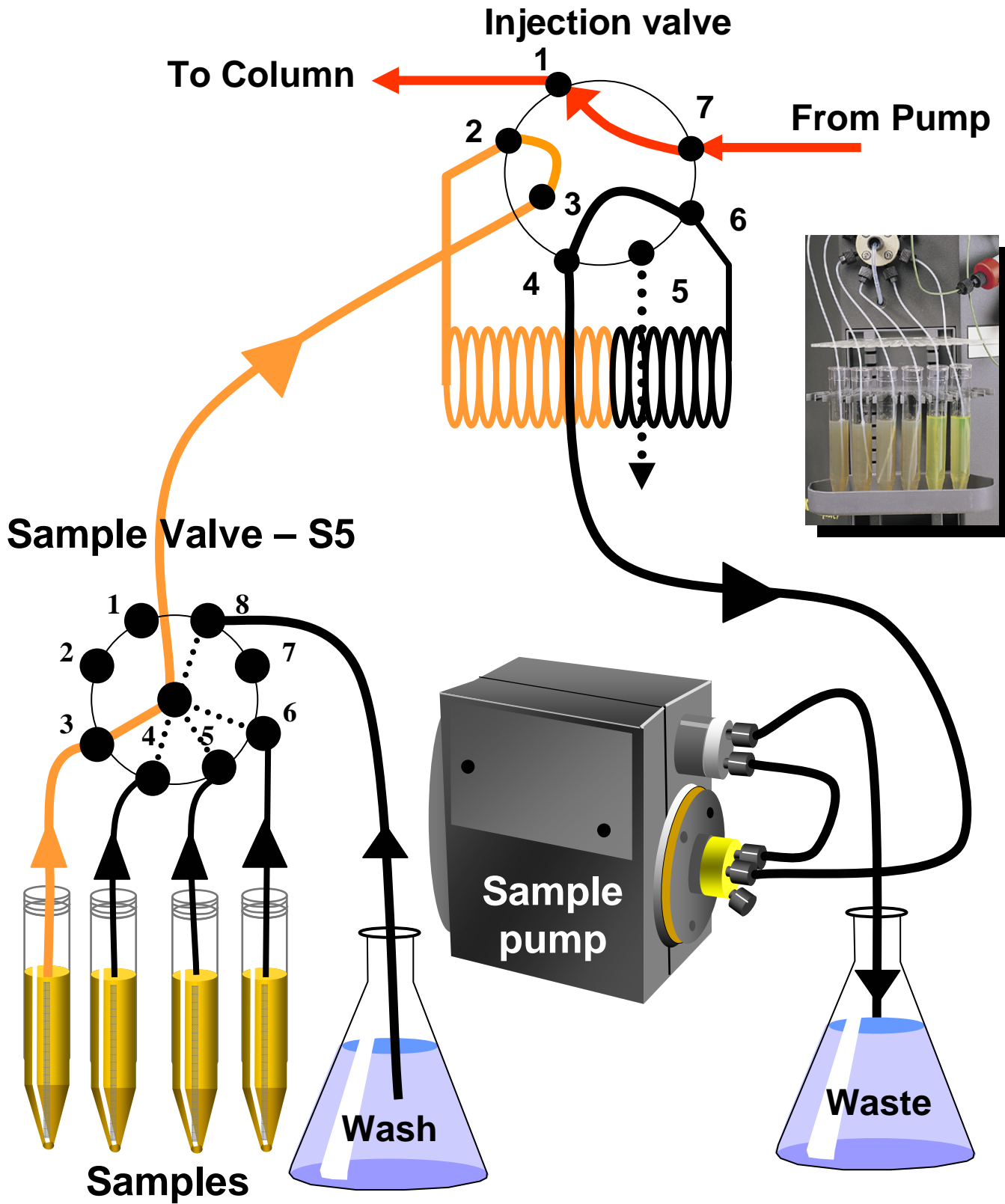
# Loading A Sample Loop Using Sample Pump



# Loading A Superloop Using Sample Pump

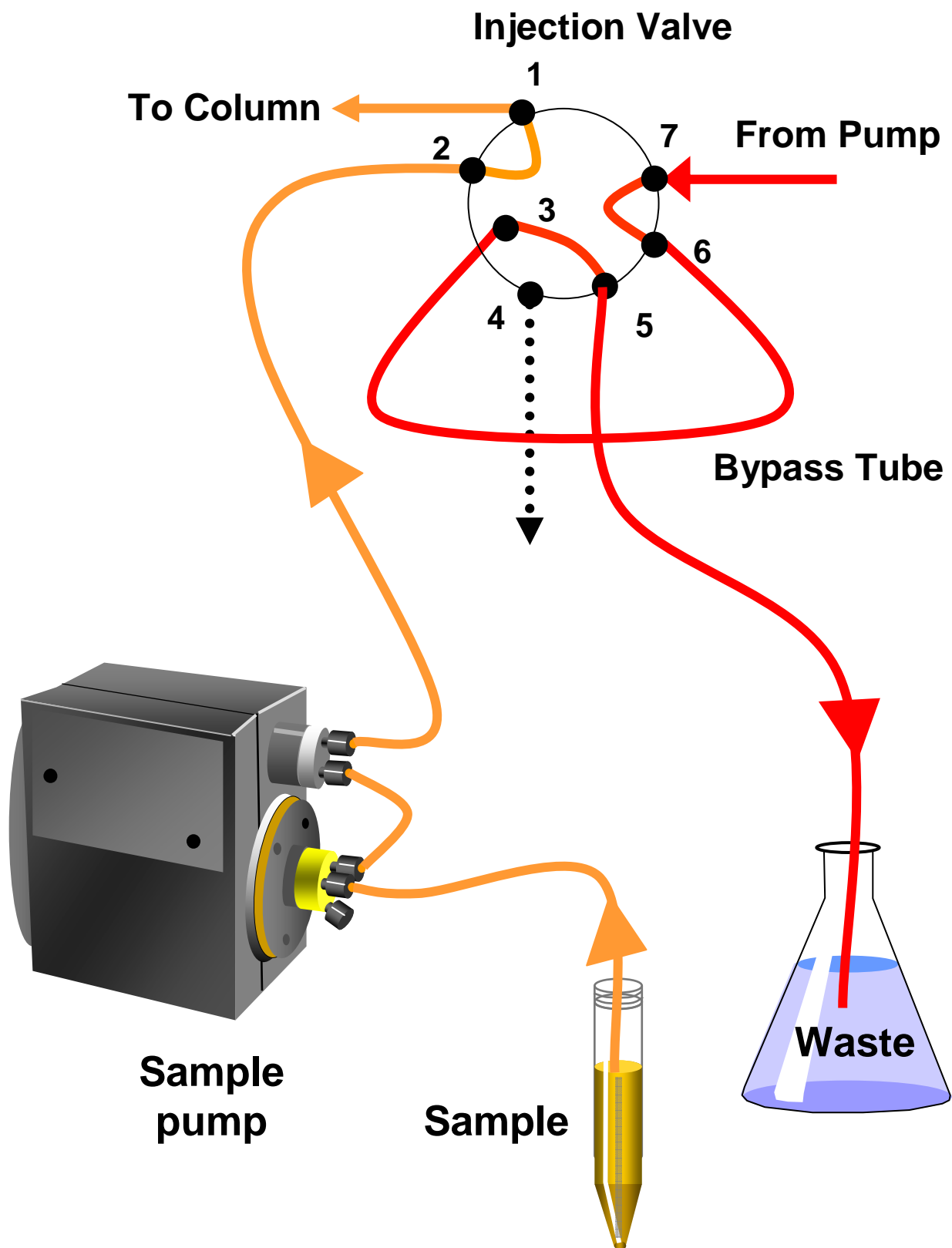


# Multi-Loading A Sample Loop Using Sample Pump

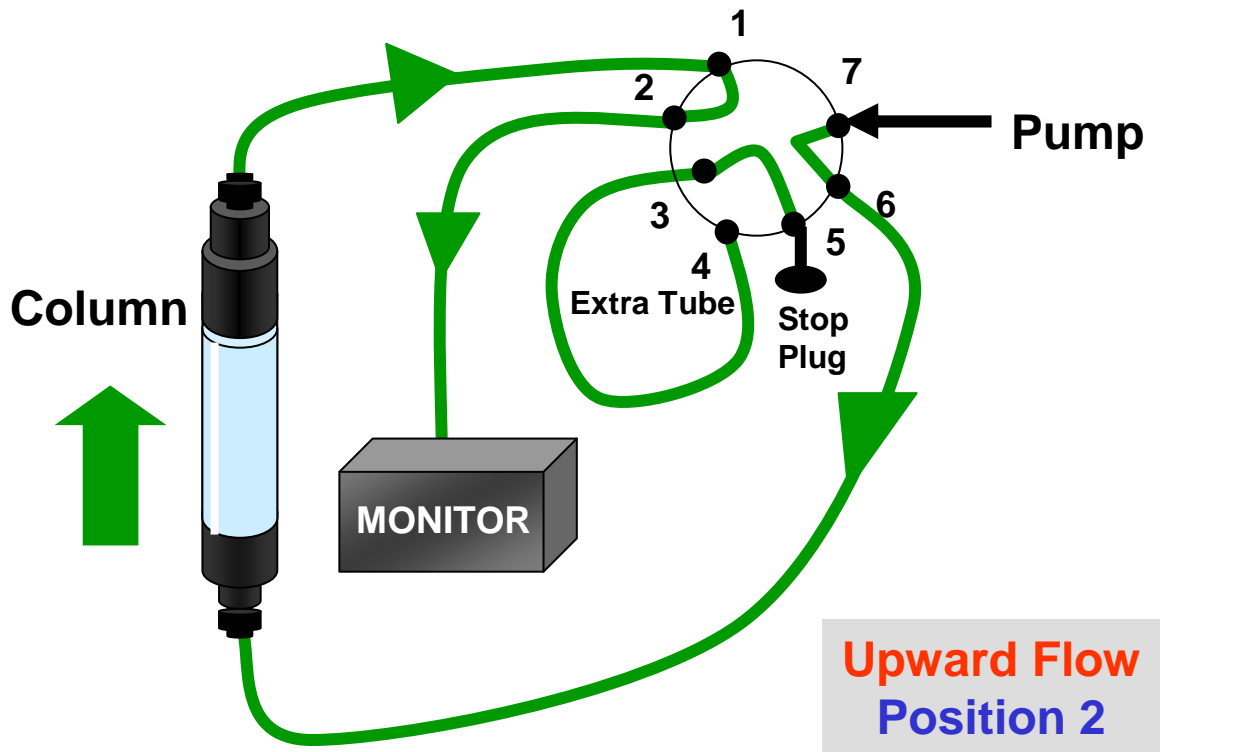
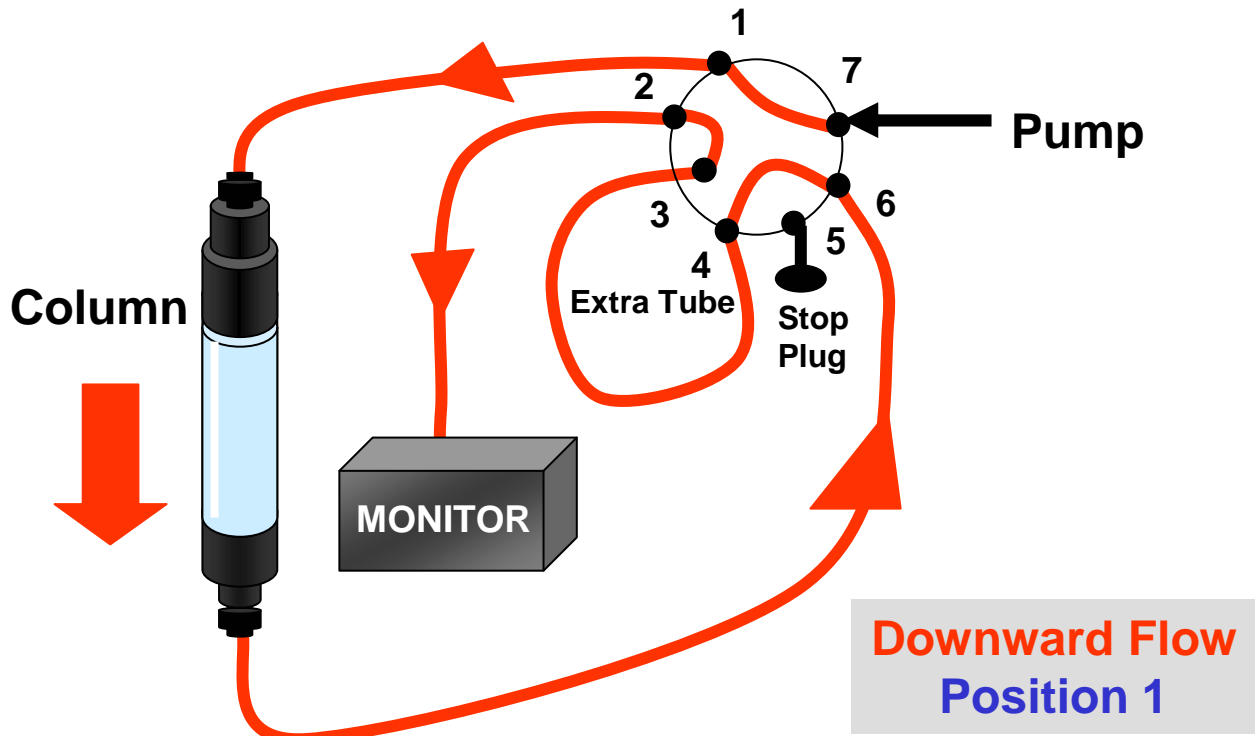




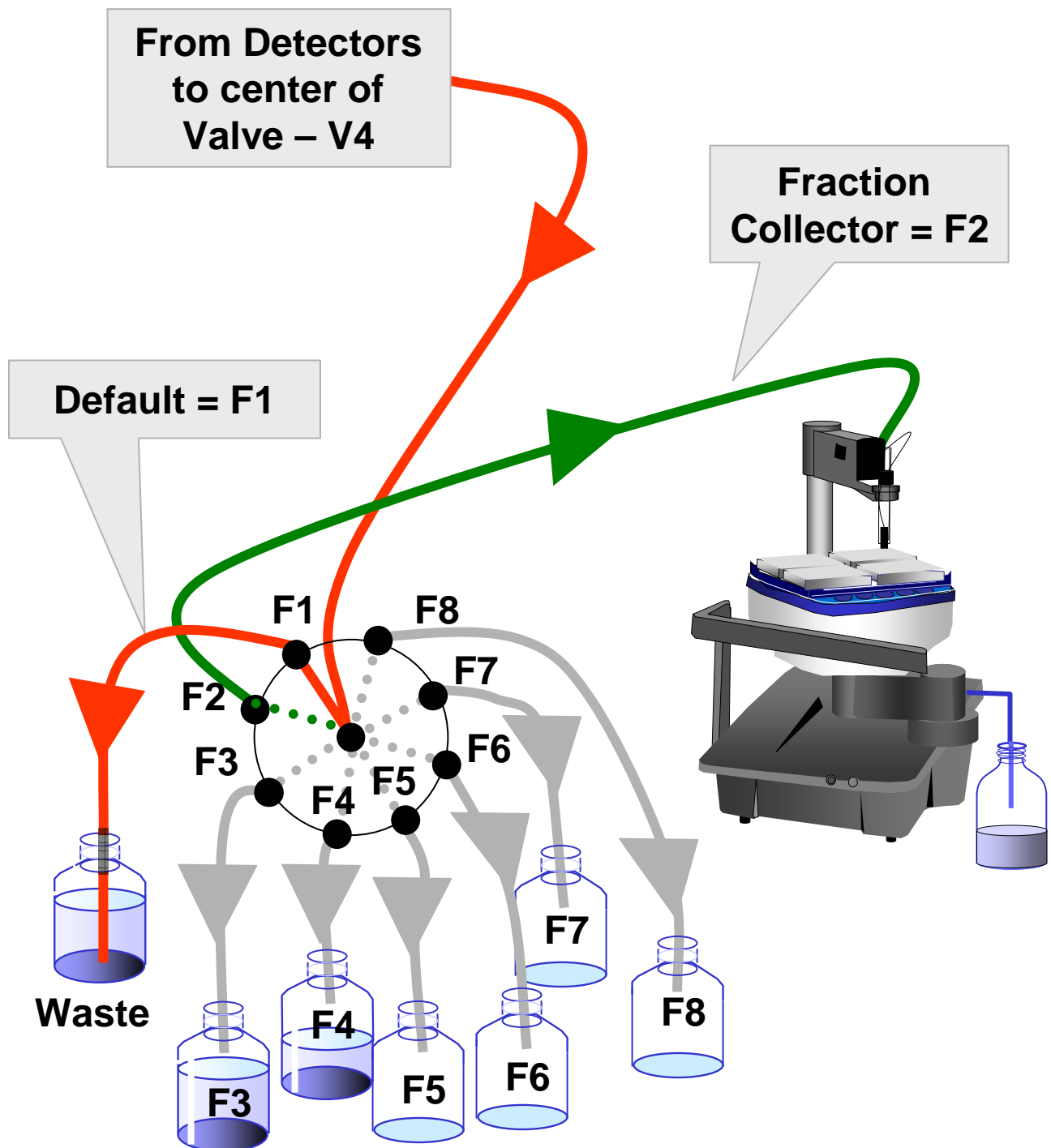
# Direct Loading On To Column



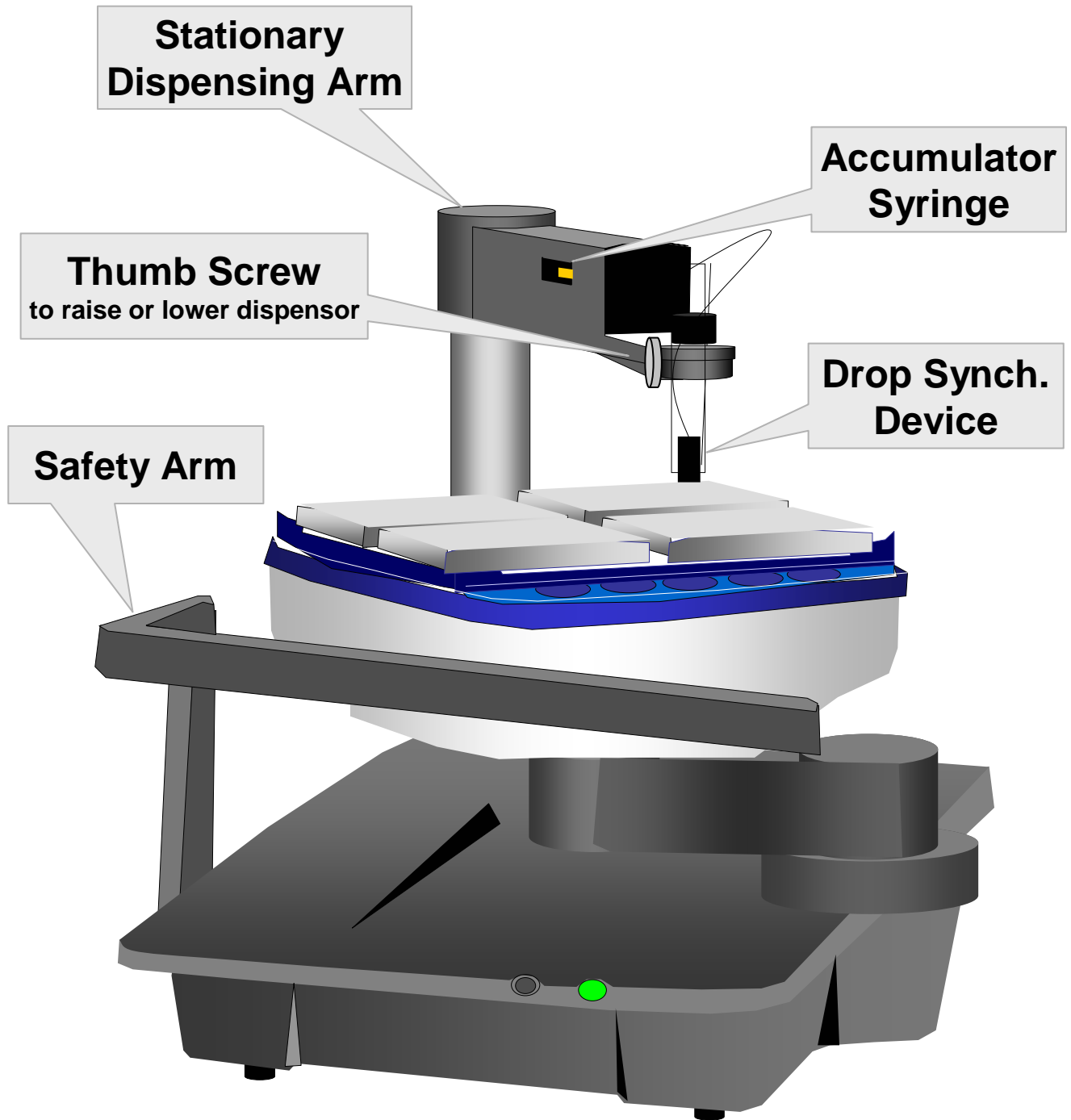
# Reverse Flow Valve



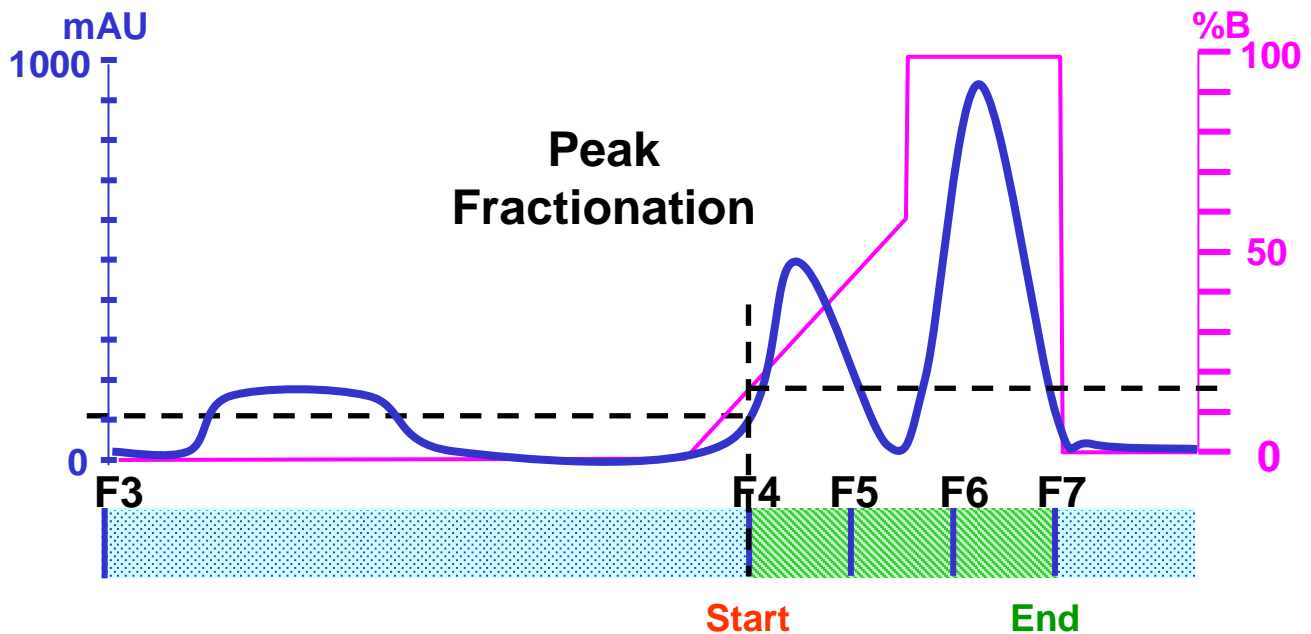
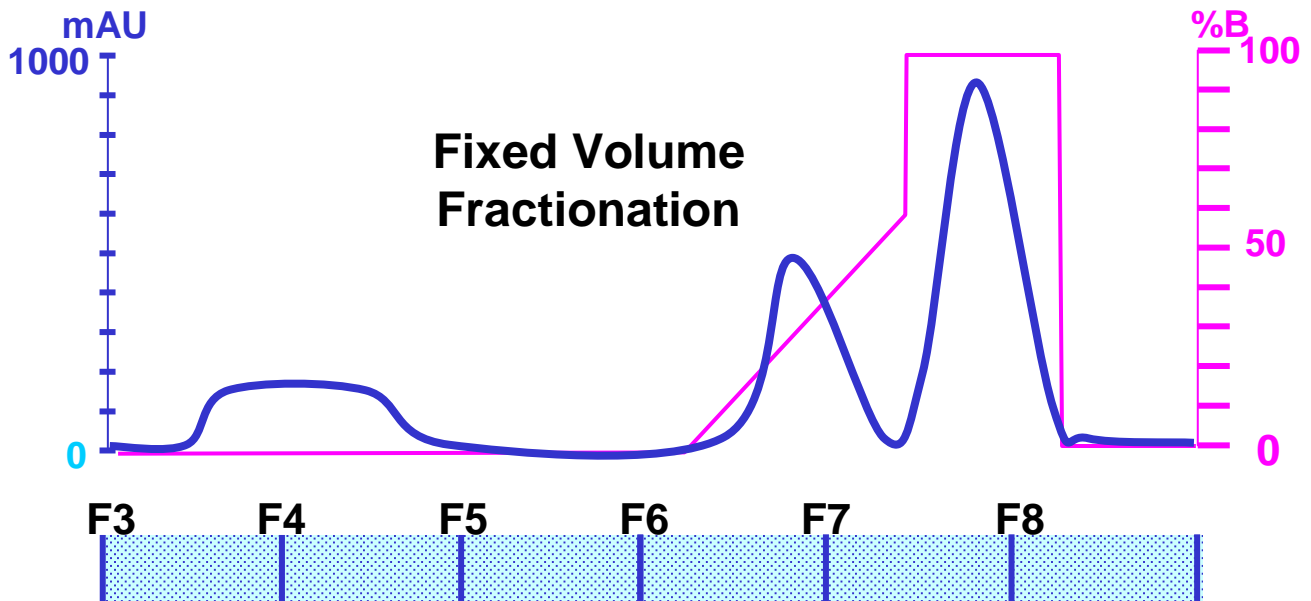
# Outlet Valve Configuration



# Frac-950 – Fraction Collector



# Fraction Collection



Peak Fractionation can be used in several different ways.

It is possible to have smaller fraction volumes

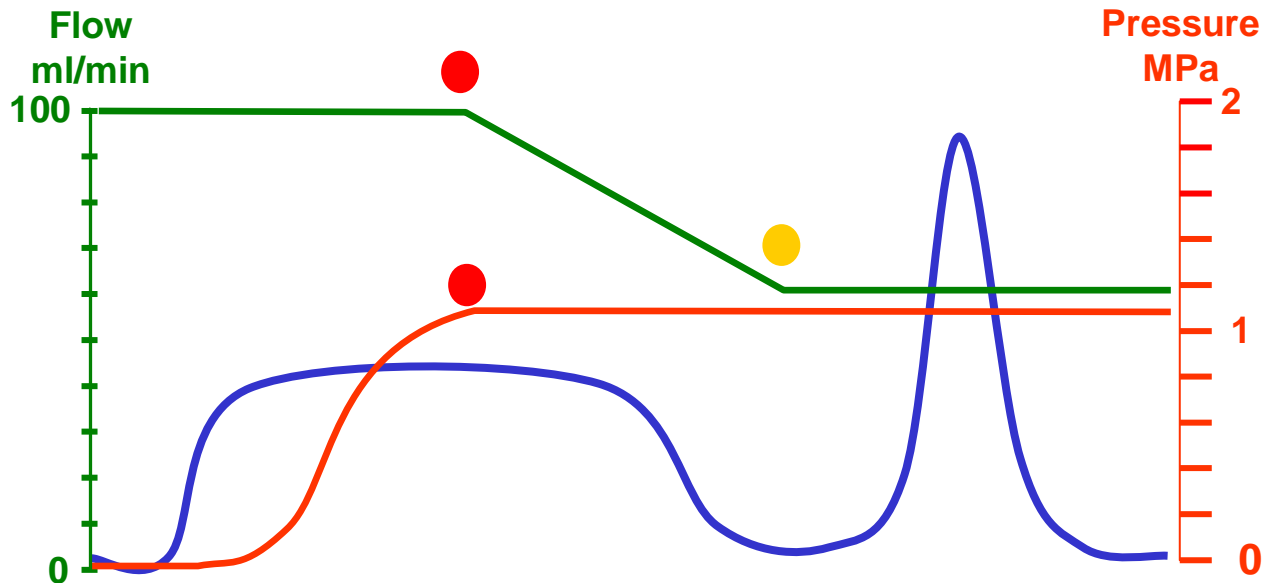
'turned-on' or 'turned-off when

1) Pre-set absorbance

or

2) % concentration of B is reached.

# Automatic Pressure Flow Regulation



*Automatic Pressure Flow Regulation* is used to load a sample on to a chromatographic column by **constant pressure** rather than **constant flow rate**.

'Flow Regulation' can be used during the loading of viscous samples onto a column.

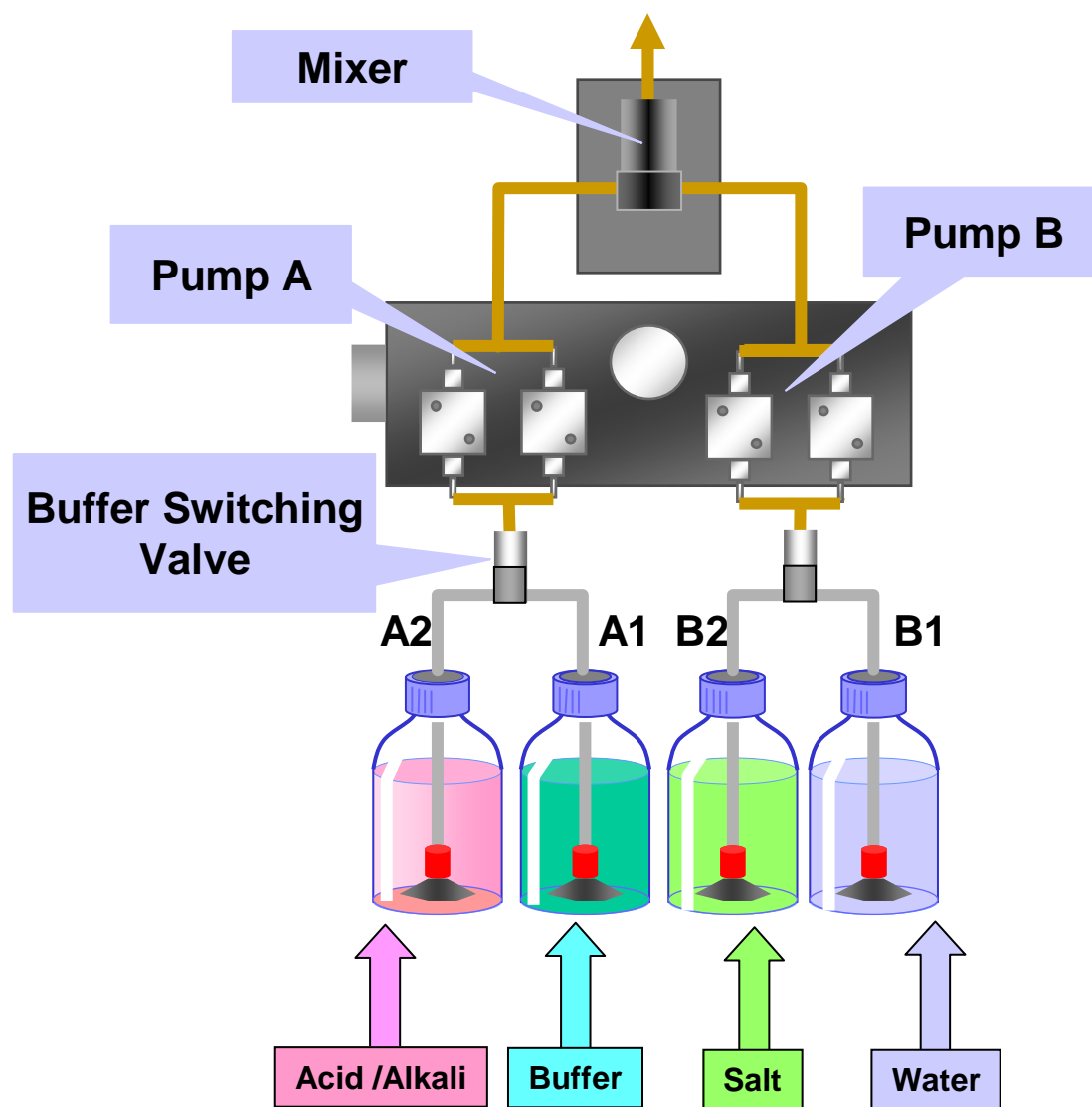
For Example,

when a crude sample is loaded onto a column, the column may clog and increase the work load on the pump. The system pressure may increase. This pressure is due to the build up of proteins, lipids and nucleic acids, and cellular debris onto the column. By setting a maximum pressure limit for the column and a minimum flowrate two things will happen.

- 1) When the pressure on the column reaches the set limit the pump flow rate will be adjusted downward.
- 2) If the flow rate reaches the minimum flow rate previously set the run will be paused otherwise the run will continue at a reduced flow rate.

'Flow Regulation' of the System Pump is active during  
Sample Injection &  
During Wash Out of Unbound Sample.

# Using The Buffer-Prep Command



The Buffer Prep command can be used to mix buffers with a range of pH's and salt concentrations. By using the buffer switching valve the Explorer is able to sample all four solutions and prepare calculated pH and salt concentrations.

The Buffer-Prep command can be used in conjunction with Scouting to test a useful range of pH's.

# Watch Equilibration Commands

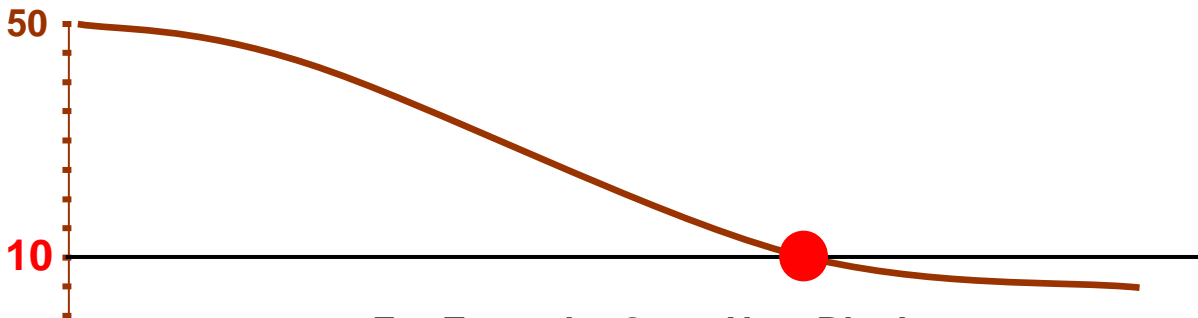
**Watch** and **WatchPar** commands are like **If...Then** statements.

For example,

**Watch** conductivity **If** it is less than 10 mS/cm  
**Then** finish the equilibration.

- **Conductivity Less than...**

Conductivity  
mS/cm

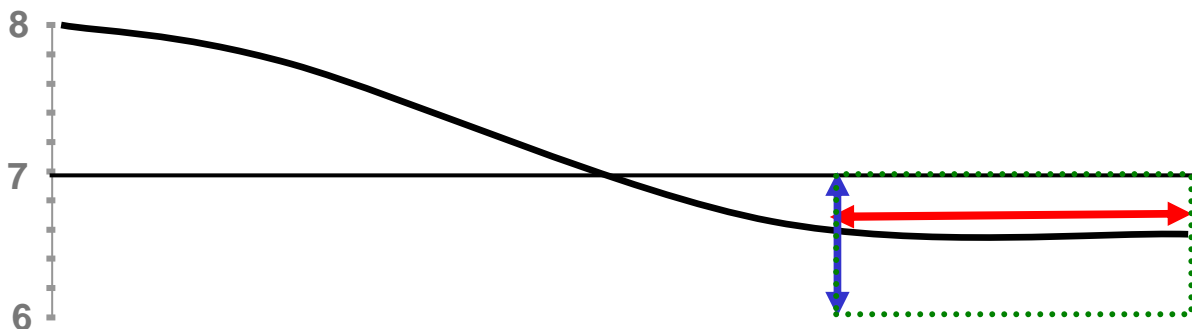


For Example: Go to Next Block  
**If** Conductivity is  $\leq 10$  mS/cm

- **Stable pH, Conductivity or UV...**

pH

Stability is measured for a period of **Time** and **Delta**

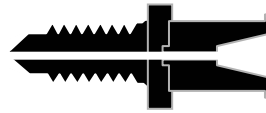


For Example: Go to Next Block  
**If** pH is stable for **2 min**,  $\pm 0.5$  pH units

# Tubing Fittings & Adapters



**1/16" Fingertight Fitting**  
18-1112-55



**Luer Fitting Adapter**  
18-1112-51



**Fingertight Stop Plug**  
18-1112-52



**5/16" Stop Plug**  
18-1112-50



**Tubing Connector**  
M6 male / O - ring  
18-1017-98



**M6 male X 1/16" female Adapter**  
18-1112-57



**M6 - Flange Fitting Adapter**  
18-1112-58



**1/16" Slim Fingertight Fitting**  
18-1172-63



**Ferrules for Flangeless Inlet Connectors**  
3/16" 18-1112-48  
1/8" 18-1121-18  
1/16" 18-1127-06



**Flangeless Inlet Connector**  
3/16" 18-1112-49  
1/8" 18-1121-17  
1/16" 18-1127-07



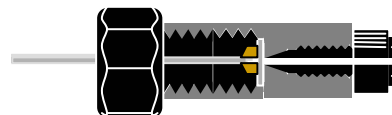
**1/16" female X 1/16" female Union Ti**  
18-3955-01



**Union + 2 Fingertight Fittings**



**M6 female X 1/16" female Union**  
18-1123-94



**M6 - FPLC Flange X 1/16" Fingertight**

# PEEK<sup>TM</sup> Tubing



Tan, 1/16" OD x 1.0 mm ID ( 7.85ul / cm )  
**Part # 18-1115-83**



Green, 1/16" OD x 0.75 mm ID ( 4.42ul / cm )  
**Part # 18-1112-53**



Orange, 1/16" OD x 0.5 mm ID ( 1.96ul / cm )  
**Part # 18-1113-68**



Blue, 1/16" OD x 0.25 mm ID ( 0.49ul / cm )  
**Part # 18-1120-95**

# Teflon / Tefzel Tubing



**3/16" OD, Part # 18-1112-47**

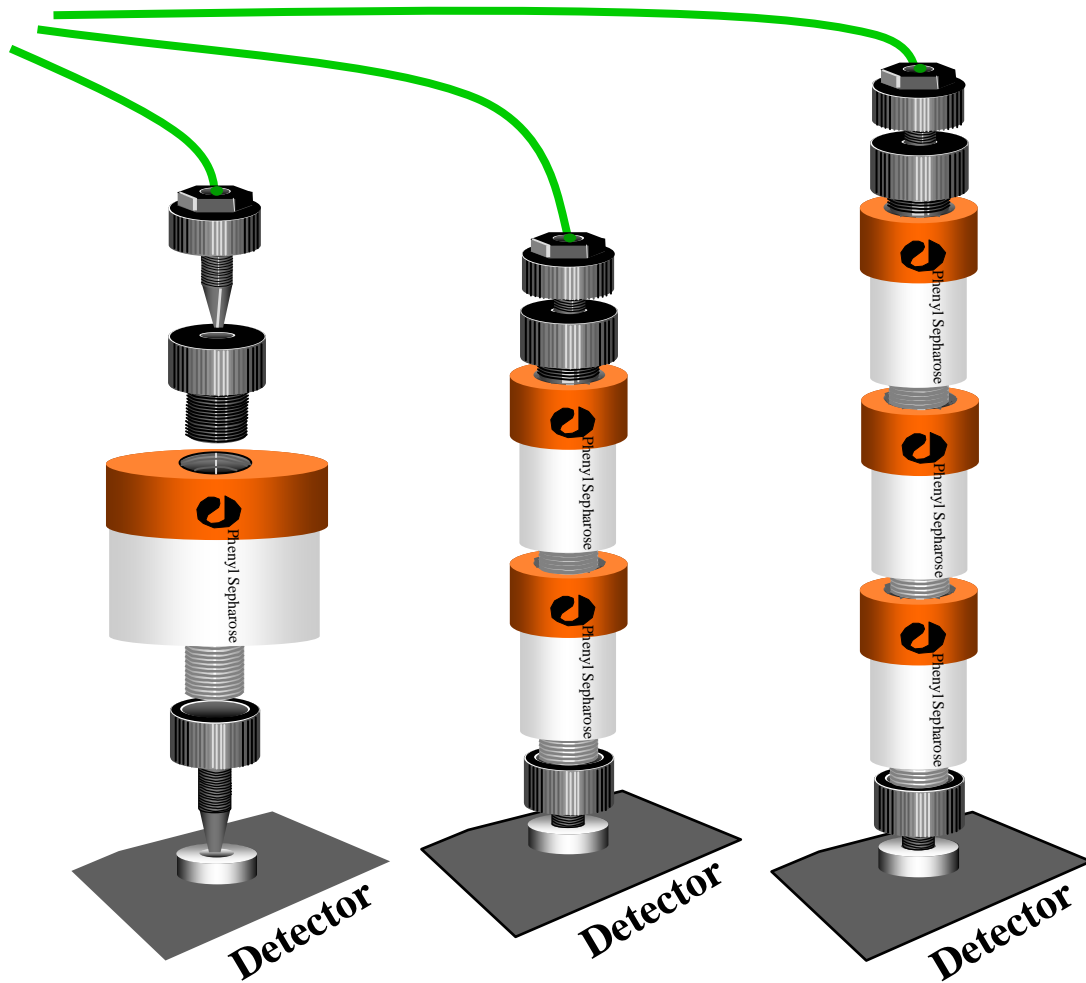


**1/8" OD, Part # 18-1121-16**



**1/16" OD, Part # 18-1119-74**

# Multiple HiTrap Arrangements



17528601	HITRAP FF Crude 5 X 5 ML
17525501	HITRAP FF 5 X 5 ML
17513101	GSTRAP 1 X 5 ML
17040501	HITRAP PROTEIN G 1 X 5 ML
17508001	HITRAP R-PROTEIN A 1 X 5 ML
17134901	HITRAP HIC SELECTION KIT
17140801	HITRAP Desalting 5 X 5 ML
17041301	HITRAP BLUE 1 X 5 ML
17600233	HITRAP IEX SELECTING KIT