

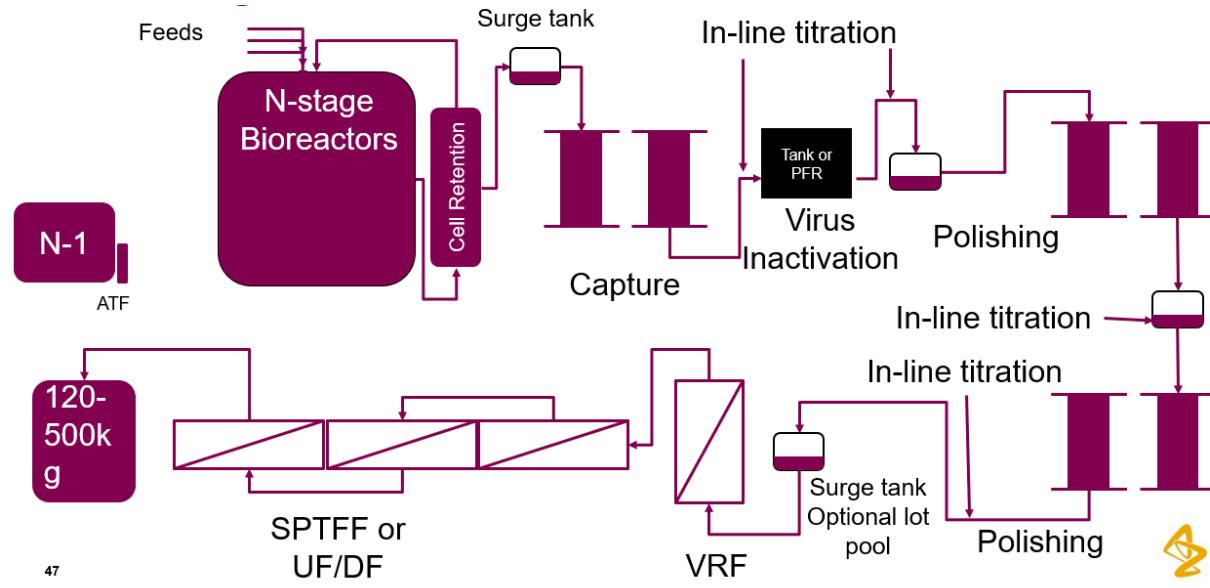


The National Institute for Innovation in Manufacturing Biopharmaceuticals





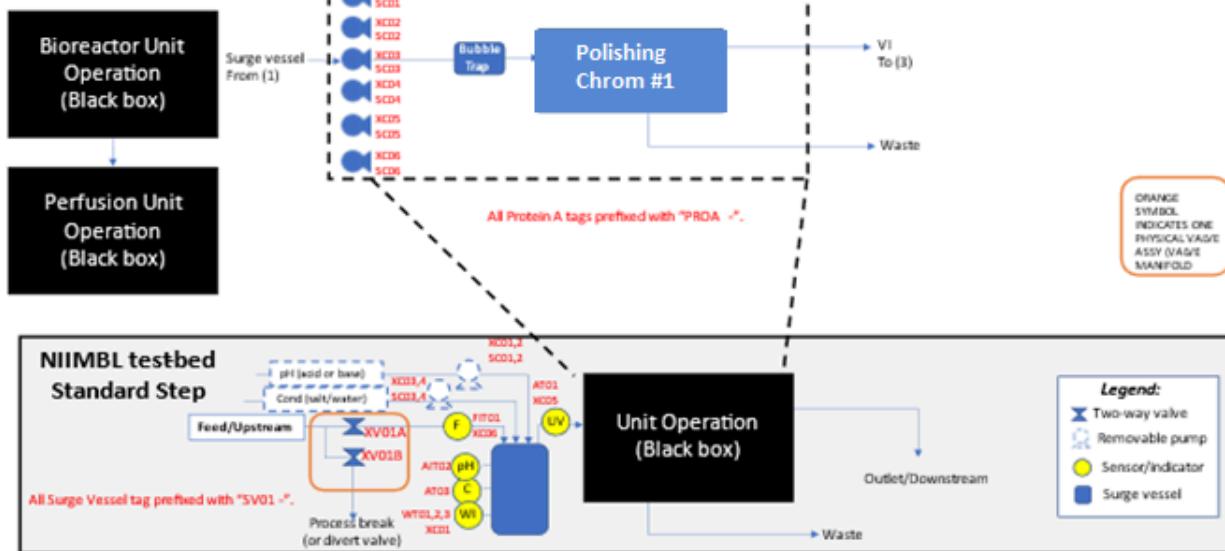








**Polishing  
(2) Chrom #1**

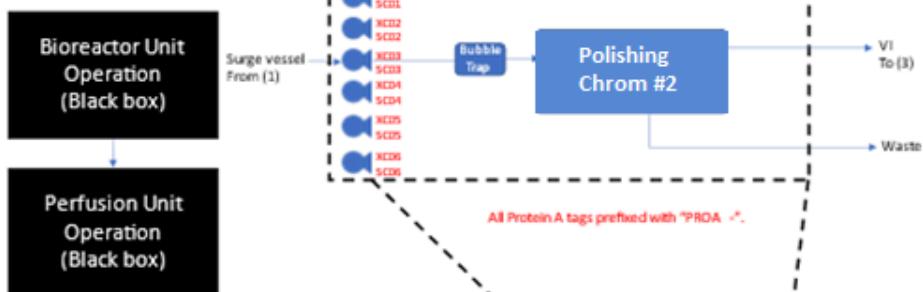








**(2) Polishing Chrom #2**



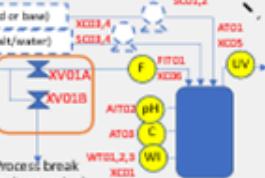
ORANGE SYMBOL INDICATES ONE PHYSICAL VALVE ASSY (VALVE MANIFOLD)

**NIIMBL testbed Standard Step**

Feed/Upstream

All Surge Vessel tag prefixed with "SV01 -".

Process break (or divert valve)



Unit Operation (Black box)

Outlet/Downstream

Waste

**Legend:**

- Two-way valve
- Removable pump
- Sensor/Indicator
- Surge vessel

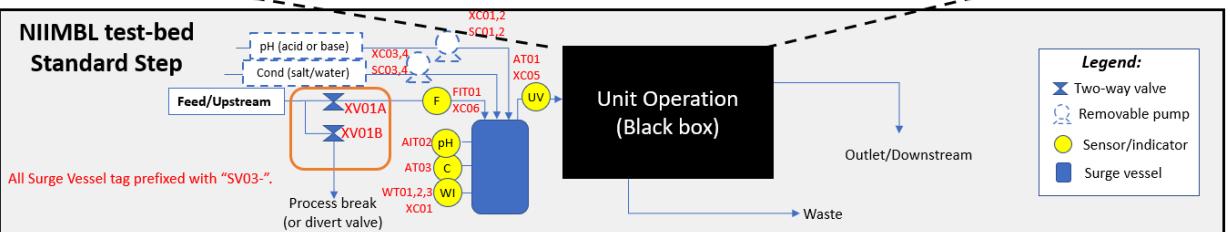








**(4) Post-VI Depth Filtration**

















(3)

### Viral inactivation black box:

















**(8) Ultrafiltration**

