




UHPLC/HPLC Sample Filtration

Phenex™ Syringe Filters


- Rapid Filtration of UHPLC/HPLC Samples Prior to Analysis
- Particulate, PVC, and Extractable-Free Filters
- More Consistent, Reliable Performance

Select your filter in three EASY steps:

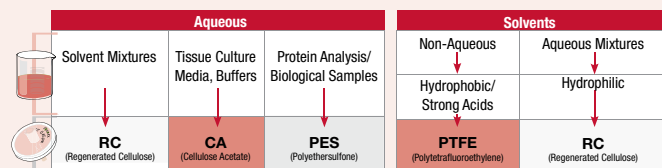
1. What is your sample volume?

| ≤ 2 mL Sample Volume | 2 to 10 mL Sample Volume | 10 to 100 mL Sample Volume |
|---|---|---|
| 4 mm Diameter | 15 mm Diameter | 25 - 28 mm Diameter |
|  |  |  |

3. Why select 0.20 µm syringe filters?

| < 3 µm | For LC particle sizes < 3.0 µm, a 0.20 µm syringe filter membrane is recommended. |
|---|---|
| 0.20 µm  | If working with very viscous samples, use a Glass Fiber (GF) prefilter. |

2. What type of sample are you working with?



Phenex Syringe Filter Ordering Information

| Membrane Type/Size | 4 mm Diameter for ≤ 2 mL sample volumes | | 15 mm Diameter for 2 - 10 mL sample volumes | | 25 - 30 mm Diameter for 10 - 100 mL sample volumes | |
|---|--|--------|--|--------|---|--------|
| | Part No. | Unit | Part No. | Unit | Part No. | Unit |
| 0.20 µm | | | | | | |
| Phenex-RC (Regenerated Cellulose) | AF0-3203-12 | 100/pk | AF0-2203-12 | 100/pk | AF0-8203-12 | 100/pk |
| | AF0-3203-52 | 500/pk | AF0-2203-52 | 500/pk | AF0-8203-52 | 500/pk |
| Phenex-PES ² (Polyethersulfone) | — | — | — | — | AF0-8208-12 | 100/pk |
| | — | — | — | — | AF0-8208-52 | 500/pk |
| Phenex-PTFE ⁴ (Polytetrafluoroethylene) | AF0-3202-12 | 100/pk | AF0-2202-12 | 100/pk | AF0-1202-12 | 100/pk |
| | AF0-3202-52 | 500/pk | AF0-2202-52 | 500/pk | AF0-1202-52 | 500/pk |
| Phenex-NY (Nylon) | AF3-3207-12 | 100/pk | AF0-2207-12 | 100/pk | AF0-1207-12 | 100/pk |
| | AF3-3207-52 | 500/pk | AF0-2207-52 | 500/pk | AF0-1207-52 | 500/pk |
| Phenex-GF/NY ¹ (Glass Fiber/Nylon) | — | — | — | — | AF0-1A47-12 | 100/pk |
| | — | — | — | — | AF0-1A47-52 | 500/pk |
| Phenex-PVDF (Polyvinylidene Fluoride) | — | — | AF6-5206-12 | 100/pk | AF6-6206-12 | 100/pk |
| | — | — | AF6-5206-52 | 500/pk | AF6-6206-52 | 500/pk |
| Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride) | — | — | — | — | AF6-6C06-12 | 100/pk |
| | — | — | — | — | AF6-6C06-52 | 500/pk |
| Phenex-CA ³ (Cellulose Acetate) | — | — | — | — | AF0-8204-12 | 100/pk |
| | — | — | — | — | AF0-8204-52 | 500/pk |
| Phenex-GF/CA ^{1,2} (Glass Fiber/Cellulose Acetate) | — | — | — | — | AF0-8A09-12 | 100/pk |
| | — | — | — | — | AF0-8A09-52 | 500/pk |
| 1.20 µm | | | | | | |
| Phenex-GF ^{1,2} (Glass Fiber) | — | — | — | — | AF0-8515-12 | 100/Pk |
| | — | — | — | — | AF0-8515-52 | 500/Pk |

Above syringe filters are non-sterile. Housing is made of medical-grade polypropylene (PP) and offer luer lock inlet/slip outlet connections, unless otherwise indicated.

FOOTNOTES:

- Glass fiber filters are 28 mm diameter and made of borosilicate. They will remove 90 % of all particles >1.2 µm.
- Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cyrolite®.
- 26 mm diameter.
- Hydrophobic membrane. Can be made hydrophilic by pre-wetting with IPA.
- 28 mm diameter.
- Additional dimensions and membrane types are available. Please contact your local Phenomenex technical consultant or distributor for availability or assistance.
- Larger quantity purchases at significant savings are available.
- 17 mm diameter.

Re-Ordering Information

SecurityGuard™ ULTRA Cartridge Holder

| Part No. | Description | Unit |
|--------------------------|--|------|
| AJ0-9000 | SecurityGuard ULTRA Guard Cartridge Holder | 1/pk |

SecurityGuard ULTRA Cartridges

| Ordering Information | | | Column ID (mm) | | |
|--|------------------------|--------------|--------------------------|--------------------------|--------------------------|
| Material | Description | pH Stability | 2.1 | 3.0 | 4.6 |
| Cartridges for General Purpose / Pharmaceutical | | | | | |
| EVO C18 | (ODS, Octadecyl) | 1.0 – 12.0 | AJ0-9298 | AJ0-9297 | AJ0-9296 |
| C18 | (ODS, Octadecyl) | 1.5 – 8.5* | AJ0-8782 | AJ0-8775 | AJ0-8768 |
| C8 | (MOS, Octyl) | 1.5 – 8.5* | AJ0-8784 | AJ0-8777 | AJ0-8770 |
| PFP | (Pentafluorophenyl) | 1.5 – 8.5* | AJ0-8787 | AJ0-8780 | AJ0-8773 |
| F5 | (Pentafluorophenyl) | 1.5 – 8.5* | AJ0-9322 | AJ0-9321 | AJ0-9320 |
| Biphenyl | (Biphenyl) | 1.5 – 8.5* | AJ0-9209 | AJ0-9208 | AJ0-9207 |
| Phenyl | (Phenylhexyl) | 1.5 – 8.5* | AJ0-8788 | AJ0-8781 | AJ0-8774 |
| HILIC | (HILIC) | 2.0 – 7.5 | AJ0-8786 | AJ0-8779 | AJ0-8772 |
| Polar C18 | (Polar Functional C18) | 1.5 – 8.5* | AJ0-9532 | AJ0-9531 | AJ0-9530 |

Cartridges for General Purpose / Pharmaceutical (Fully Porous Columns)

For fully porous columns like Luna® Omega (Phenomenex)

| | | | | | |
|-----------|---------------------------|------------|--------------------------|--------------------------|--------------------------|
| C18 | (ODS, Octadecyl) | 1.5 – 8.5* | AJ0-9502 | AJ0-9501 | AJ0-9500 |
| Polar C18 | (Polar Functional C18) | 1.5 – 8.5* | AJ0-9505 | — | — |
| PS C18 | (Positive Functional C18) | 1.5 – 8.5* | AJ0-9508 | — | — |

Cartridges for Protein and Peptide Reversed Phase

For use with columns like Aeris™ (Phenomenex)

| | | | | | |
|--------------|------------------|------------|--------------------------|---|--------------------------|
| Widepore C18 | (ODS, Octadecyl) | 1.5 – 8.5* | AJ0-8783 | — | AJ0-8769 |
| Widepore C8 | (MOS, Octyl) | 1.5 – 8.5* | AJ0-8785 | — | AJ0-8771 |
| Widepore C4 | (Butyl) | 1.5 – 8.5* | AJ0-8899 | — | AJ0-8901 |
| Peptide C18 | (ODS, Octadecyl) | 1.5 – 8.5* | AJ0-8948 | — | AJ0-8946 |

For use with columns like Biozen™ (Phenomenex)

| | | | | | |
|----------------|---------------------------|-------------|--------------------------|---|--------------------------|
| Glycan | (Amide Polyol) | 2.0 – 7.5 | AJ0-9800 | — | — |
| Peptide PS-C18 | (Positive Functional C18) | 1.5 – 8.5* | AJ0-9803 | — | — |
| Peptide XB-C18 | (ODS, Octadecyl) | 1.5 – 9.0** | AJ0-9806 | — | AJ0-9808 |
| Intact C4 | (Butyl) | 1.5 – 9.0** | AJ0-9809 | — | AJ0-9811 |
| Intact XB-C18 | (MOS, Octyl) | 1.5 – 9.0** | AJ0-9812 | — | AJ0-9814 |
| SEC-2 | (Silica) | 2.5 – 7.5 | — | — | AJ0-9850 |
| SEC-3 | (Silica) | 2.5 – 7.5 | — | — | AJ0-9851 |

Cartridges for Synthetic DNA / RNA Analysis

For use with columns like Clarity® (Phenomenex)

| | | | | | |
|--------------|------------------|------------|--------------------------|---|--------------------------|
| Oligo-MS C18 | (ODS, Octadecyl) | 1.5 – 8.5* | AJ0-9068 | — | — |
| Oligo-XT | (ODS, Octadecyl) | 1.0 – 12.0 | AJ0-9515 | — | AJ0-9514 |

Cartridges for Silica GFC (Gel Filtration Chromatography)

(Aqueous SEC) For use with silica GFC columns such as Yarra™ (Phenomenex)

| | | | | | |
|------|---|-----------|---|---|--------------------------|
| X150 | — | 1.5 – 8.5 | — | — | AJ0-9512 |
| X300 | — | 1.5 – 8.5 | — | — | AJ0-9513 |

*pH stable 1.5–8.5 under gradient conditions. pH stable 1.5–10 under isocratic conditions.
**pH range is 1.5–9 under gradient conditions. pH range is 1.5–10 under isocratic conditions.
[AJ0-9000](#) is the universal holder designed for use with 2.1 mm, 3.0 mm and 4.6 mm ID cartridges.



SecurityGuard ULTRA Installation Manual
Guard Cartridge System for UHPLC



Phenomenex products are available worldwide.

www.phenomenex.com/mysupport

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GUARANTEE**

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

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Thank you for purchasing
SecurityGuard™ ULTRA,
the ultimate in UHPLC
column protection.

SecurityGuard ULTRA:

- Extends HPLC/UHPLC, core-shell, and < 3 µm particle column lifetime
- Virtually no change in chromatography
- Fits virtually all manufacturers' columns 2.1 to 4.6 mm ID
- Pressure rated to 20000 psi (1378 bar)
- Simple to use

View the installation videos:
www.phenomenex.com/SecurityGuardULTRA



IL82410721_W



SecurityGuard™ ULTRA

Protect your UHPLC/HPLC column from damaging contaminants and microparticulates.

- Extends UHPLC/HPLC, Core-Shell, and < 3 µm Particle Column Lifetime
- Virtually No Change in Chromatography
- Fits Virtually All Manufacturers' Columns 2.1 to 4.6 mm ID
- Pressure Rated to 20000 psi (1378 bar)



UNIVERSAL FIT

Use with virtually all UHPLC / HPLC columns 2.1 to 4.6 mm ID. The extremely low dead volume of this unique design minimizes sample peak dispersion and effectively remove microparticulates and chemical contaminants from the flow stream without contributing to system backpressure or dead volume (< 0.3 µL).

INSTALLATION INSTRUCTIONS

STEP 1.

SecurityGuard ULTRA Holder-Cartridge Assembly

Watch the product assembly video: www.phenomenex.com/SGUinstall

- Inspect holder (AJO-9000). It is comprised of two pieces that are coupled together, the tube base and the floating nut. If the two pieces happen to separate, simply put them back together. It's important the tube nib (tube end) should extend beyond the ferrule a full 4 mm. (Figure 1).
- Select a guard cartridge. Match the correct cartridge phase to your column chemistry and dimension (see re-ordering information). Inspect the male end of the guard cartridge to ensure it is free of scratches, debris, and particulates (Figure 2).
- Attach a guard cartridge to the holder using your hands. Screw (turn clockwise) the guard cartridge into the holder as far as possible to make the holder-cartridge assembly (Figure 3). Final wrench-tightening of the assembly will be done in Step 2.

Figure 1. Holder

Comprised of Tube Base and Floating Nut

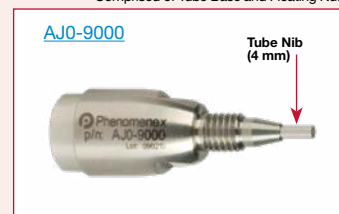


Figure 2. Guard Cartridge



Figure 3. Holder-Cartridge Assembly



STEP 2.

Connect SecurityGuard ULTRA into Your Column

Watch the system connection video: www.phenomenex.com/SGUconnection

- Connect holder-cartridge assembly into column. Take the holder-cartridge assembly made in Step 1 and insert the tube nib (tube end) straight into your column's end-fitting (Figure 4). Using your hands, in a clockwise direction, screw the holder-cartridge assembly into the column inlet end-fitting as far as it will go. The tubing will extend to the appropriate port depth of your column's end-fitting.
- Create a leak-free connection. Place one wrench on the end nut (size will vary) of the column. Place a second (5/16 in.) wrench on the flat area of the cartridge (Figure 5). In a clockwise direction, turn the wrench on the flat area of the cartridge (do not turn the wrench on the column end-fitting) to drive the entire holder-cartridge assembly into the column end. Tighten until leak-free, or about 1/4 turn. Do not over tighten. About 15 psi of torque is sufficient to seat (swage) the ferrule of the holder to the tubing nib, and provide a pressure-rating up to 20,000 psi (1,378 bar). The holder-cartridge assembly is now connected to the column (Figure 6).

Figure 4. Connect Holder-Cartridge Assembly into Column

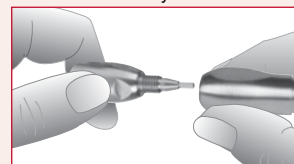


Figure 5. Create Leak-Free Connection

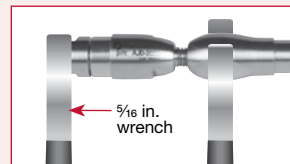


Figure 6. Holder on Column

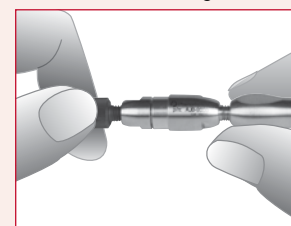


STEP 3.

Connect Tubing into the SecurityGuard ULTRA Holder-Cartridge Assembly

- Make sure the tubing from the injector is cut smooth and at a right angle (Phenomenex recommends precision pre-cut tubing).
- Slide the appropriate Parker-compatible metal or polymeric (PEEK) nut and ferrule assembly onto the 1/16 in. tubing coming from your injector. Phenomenex recommends different fittings depending on system operating pressures (see UHPLC/HPLC fittings panel).
- Connect the tubing all the way down into the inlet (female end) of the holder-cartridge assembly (Figure 7). The tube should be centered and pushed into the female end until it cannot go further.
- For polymeric (PEEK) fittings: In a clockwise direction, turn the fitting about 1/4 beyond the point where the ferrule first starts to grab the tubing or until it is leak-free. Phenomenex recommends a hand tightening tool (AQQ-8530) designed for high-pressure applications.
- For metal fittings: Wrench tighten the fitting into the SecurityGuard ULTRA Holder-Cartridge Assembly until leak-free (about 1/4 turn) but do not over tighten.

Figure 7. Connect Tubing into Holder-Cartridge Assembly



The metal or polymeric (PEEK) nut and ferrule assembly used to make the connection with the SecurityGuard ULTRA Cartridge must be Parker-compatible (Parker, Valco, or Phenomenex-type). The assembly must be tightened and seated (swaged) to the tubing at the exact port depth of the guard cartridge. The use of pre-swaged assemblies may result in leakage, band broadening, or damage to the SecurityGuard ULTRA.

CARTRIDGE REPLACEMENT

When Should I Replace My SecurityGuard ULTRA Cartridge?

Watch the cartridge replacement video: www.phenomenex.com/CartReplacement

Periodic replacement of the cartridge is required to maintain optimum column protection and chromatographic performance. Cartridge lifetime will vary depending on the application and sample matrix. If you experience any of the following symptoms, your cartridge may need replacement:

Replacement Guidelines

| Symptoms | Criteria |
|--|---|
| Increasing system backpressure | >25 % or before system auto-shutdown |
| Loss of peak efficiency | Efficiency (N) decreases by >25 % |
| Loss of peak resolution (merging, shifting) | Resolution (R _s) decreases by 10 % |
| Abnormal peak shape (broadening, shortening) | Unacceptable to method |
| Baseline symptoms (drifting, irreproducibility) | Unacceptable to method |
| Retention time symptoms (drifting, shortening) | Unacceptable to method |
| Loss of accuracy or precision | Unacceptable to method |
| Routine preventive maintenance (to minimize degraded chromatography and improve column lifetime) | Depends on acceptance criteria of method >150 samples injected >1,000 analytical column volumes |

STEP 1.

Select a Replacement Cartridge

Match the correct phase of the guard cartridge to your column chemistry (see re-ordering information on back). Inspect the male end of the cartridge to ensure it is free of scratches, debris, and particulates (Figure 2).

STEP 2.

Changing Your SecurityGuard ULTRA Cartridge

- Use two 5/16 in. wrenches. Place one wrench on the flat area of the guard cartridge and one on the flat area of the holder. Unscrew (turn counter-clockwise) the cartridge from the holder.
- Screw (turn clockwise) the replacement cartridge into the holder as far as possible by hand. Place one wrench on the holder and use the other 5/16 in. wrench on the cartridge flat to tighten until leak-free, or about 1/4 turn. Do not over tighten. The cartridge should now be leak-free.

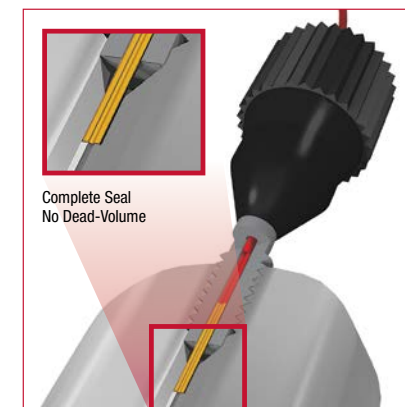
NOTE: Failure to follow these instructions may result in misalignment of the SecurityGuard ULTRA Column Protection System, resulting in damage, leaking or degraded chromatography. The holder may be swaged to virtually any brand or manufacturer's column. However, once swaged to the column, Phenomenex recommends the holder to be dedicated to that brand or manufacturer's column. Variation in end-fitting port depths and angles does exist, and moving swaged fittings from one to another may result in degraded performance.

SecurityLINK™ UHPLC Fingertight Fittings

- No tools required for quick and easy installation
- Fitting self-adjusts at column inlet to ensure zero dead-volume for better chromatographic results

- Torque Limiting Technology prevents system and column port damage
- UHPLC and HPLC compatibility: pressure rated to 19,000 psi (1,310 bar)

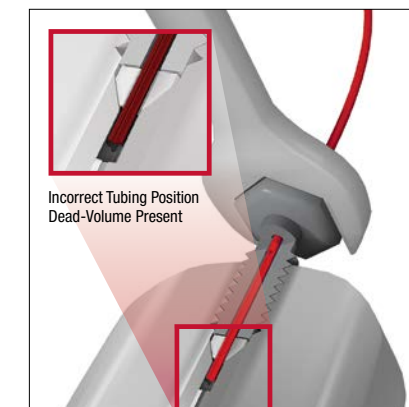
SecurityLINK UHPLC Fitting System



Complete Seal
No Dead-Volume

VS.

Poorly Connected Conventional Fittings (Nut and Ferrule)



Incorrect Tubing Position
Dead-Volume Present

Installation Instructions

Insert SecurityLINK UHPLC fitting into column port or LC system



Fingertighten until first "CLICK" feedback is received. Connection complete!



Phenomenex Column / Tubing ID Recommendation Chart

| | Nano | | Microbore | | Analytical | | | Semi-Prep | |
|-----------|-----------------------------------|-----------------------------------|---------------|--------|------------|--------|--------|---------------|--|
| Column ID | 0.05 - 0.1 mm (50 µm - 100 µm) | 0.3 - 0.5 mm (300 µm - 500 µm) | 1 mm | 2.1 mm | 3 mm | 4.6 mm | 7.8 mm | 9.0 - 16.0 mm | |
| Tubing ID | 25 µm | 50 µm | 50 µm - 75 µm | 100 µm | 100 µm | 100 µm | 120 µm | 254 µm | |

Learn More: www.phenomenex.com/SecurityLINK