

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
		

2. What type of sample are you working with?

Aqueous			Solvents	
Solvent Mixtures	Tissue Culture Media, Buffers	Protein Analysis/ Biological Samples	Non-Aqueous	Aqueous Mixtures
↓	↓	↓	Hydrophobic/ Strong Acids	Hydrophilic
RC (Regenerated Cellulose)	CA (Cellulose Acetate)	PES (Polyethersulfone)	PTFE (Polytetrafluoroethylene)	RC (Regenerated Cellulose)

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 ³	100/pk
	AF0-3203-52	500/pk	AF0-2203-52	500/pk	AF0-8203-52 ³	500/pk
Phenex-PES ² (Polyethersulfone)	—	—	—	—	AF0-8208-12 ⁵	100/pk
	—	—	—	—	AF0-8208-52 ⁵	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 ⁵	100/pk
	—	—	—	—	AF0-1A47-52 ⁵	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	AF6-5206-12 ⁸	100/pk	AF6-6206-12	100/pk
	—	—	AF6-5206-52 ⁸	500/pk	AF6-6206-52	500/pk
Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride)	—	—	—	—	—	—
	—	—	—	—	AF6-6C06-52	500/pk
Phenex-CA ³ (Cellulose Acetate)	—	—	—	—	AF0-8204-12 ⁵	100/pk
	—	—	—	—	AF0-8204-52 ⁵	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 ⁵	100/Pk
	—	—	—	—	AF0-8515-52 ⁵	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.

Re-Ordering Information

SecurityGuard™ Ultra Cartridge

Part No.	Description	Unit
AJO-9000	SecurityGuard ULTRA Guard Cartridge Holder	1/pk
AJO-8949	SecurityGuard ULTRA Cartridges, UHPLC PS-C18 4.6 mm ID Columns	3/pk
AJO-8950	SecurityGuard ULTRA Cartridges, UHPLC PS-C18 3.0 mm ID Columns	3/pk
AJO-8951	SecurityGuard ULTRA Cartridges, UHPLC PS-C18 2.1 mm ID Columns	3/pk

SecurityGuard ULTRA Cartridges

Ordering Information			Column ID (mm)		
Material	Description	pH Stability	2.1	3.0	4.6
Cartridges for General Purpose / Pharmaceutical					
			/3pk	/3pk	/3pk
EVO C18	(ODS, Octadecyl)	1.0 – 12.0	AJO-9298	AJO-9297	AJO-9296
C18	(ODS, Octadecyl)	1.5 – 8.5*	AJO-8782	AJO-8775	AJO-8768
C8	(MOS, Octyl)	1.5 – 8.5*	AJO-8784	AJO-8777	AJO-8770
PPF	(Pentafluorophenyl)	1.5 – 8.5*	AJO-8787	AJO-8780	AJO-8773
F5	(Pentafluorophenyl)	1.5 – 8.5*	AJO-9322	AJO-9321	AJO-9320
Biphenyl	(Biphenyl)	1.5 – 8.5*	AJO-9209	AJO-9208	AJO-9207
Phenyl	(Phenylhexyl)	1.5 – 8.5*	AJO-8788	AJO-8781	AJO-8774
HILIC	(HILIC)	2.0 – 7.5	AJO-8786	AJO-8779	AJO-8772
Polar C18	(Polar Functional C18)	1.5 – 8.5*	AJO-9532	AJO-9531	AJO-9530

Cartridges for General Purpose / Pharmaceutical (Fully Porous Columns)					
For fully porous columns like Luna® Omega (Phenomenex)					
C18	(ODS, Octadecyl)	1.5 – 8.5*	AJO-9502	AJO-9501	AJO-9500
Polar C18	(Polar Functional C18)	1.5 – 8.5*	AJO-9505	—	—
PS C18	(Positive Functional C18)	1.5 – 8.5*	AJO-9508	—	—

Cartridges for Protein and Peptide Reversed Phase					
For use with columns like Aerie™ (Phenomenex)					
Widepore C18	(ODS, Octadecyl)	1.5 – 8.5*	AJO-8783	—	AJO-8769
Widepore C8	(MOS, Octyl)	1.5 – 8.5*	AJO-8785	—	AJO-8771
Widepore C4	(Butyl)	1.5 – 8.5*	AJO-8899	—	AJO-8901
Peptide C18	(ODS, Octadecyl)	1.5 – 8.5*	AJO-8948	—	AJO-8946

For use with columns like Biozen™ (Phenomenex)					
Glycan	(Amide Polyol)	2.0 – 7.5	AJO-9800	—	—
Peptide PS-C18	(Positive Functional C18)	1.5 – 8.5*	AJO-9803	—	—
Peptide XB-C18	(ODS, Octadecyl)	1.5 – 9.0**	AJO-9806	—	AJO-9808
Intact C4	(Butyl)	1.5 – 9.0**	AJO-9809	—	AJO-9811
Intact XB-C18	(MOS, Octyl)	1.5 – 9.0**	AJO-9812	—	AJO-9814
SEC-2	(Silica)	2.5 – 7.5	—	—	AJO-9850
SEC-3	(Silica)	2.5 – 7.5	—	—	AJO-9851

Cartridges for Synthetic DNA / RNA Analysis					
For use with columns like Clarity® (Phenomenex)					
Oligo-MS C18	(ODS, Octadecyl)	1.5 – 8.5*	AJO-9068	—	—
Oligo-XT	(ODS, Octadecyl)	1.0 – 12.0	AJO-9515	—	AJO-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	—	—	AJO-9512
X300	—	1.5 – 8.5	—	—	AJO-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.
AJO-9000 is the universal holder designed for use with 2.1 mm, 3.0 mm and 4.6 mm ID cartridges.



Installation Manual
Guard Cartridge System for UHPLC



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Thank you for purchasing
SecurityGuard™ ULTRA
Ultimate in UHPLC column protection.

SecurityGuard ULTRA:

- Extends HPLC/UHPLC, core-shell, and < 3 µm particle column lifetime
- It doesn't alter chromatography
- Fits all manufacturers' columns 2.1 to 4.6 mm ID
- Pressure rated to 20000 psi (1378 bar)
- Simple to use

Learn how
SecurityGuard ULTRA
can protect your column

www.phenomenex.com/SecurityGuardULTRA



Installation Instructions for SecurityGuard™ ULTRA

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

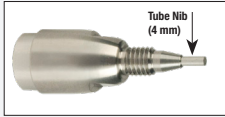
- Extends UHPLC/HPLC, core-shell, and < 3 µm particle column lifetime
- Virtually no change in chromatography
- Fits virtually all manufacturers’ columns 2.1 to 4.6 mm ID
- Pressure rated to 20000 psi (1378 bar)

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).

Before You Start

Inspect AJ0-9000 holder. It is comprised of two pieces that are coupled together, the tube base and the floating nut. It is common for the two pieces to separate during shipping – they will be swaged together in a later step. Ensure the two pieces are coupled and the tube nib (tube end) extends beyond the ferrule a full 4 mm.



Holder comprised of tube base and floating nut

STEP 1.

Connect Your Holder into Your Column

A. Connect holder into column.

Take the holder and insert the tube nib (tube end) straight into your column’s end-fitting. 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.



B. Create a leak-free and void-free connection.

The below is a suggested procedure. Please note the overall objective as you make any necessary adjustments.

Note: You may want additional support holding the column and holder in place as you adjust the wrenches for a leak-free connection.

1. **Initial Setup:**
 - After creating the initial connection, you’ll need two wrenches: a 5/16-inch wrench and a 3/8-inch wrench (may vary depending on endfitting size).
 - We recommend orienting the holder and column vertically

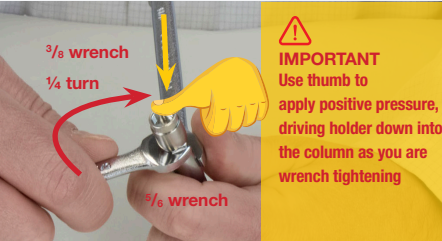
2. Position the Wrenches:

- Place the 3/8-inch wrench on the end fitting of the column. You may wish to brace the wrench or column against something sturdy to keep them in place while you orient the second wrench.
- Place the 5/16-inch wrench on the flat area (floating nut) of the cartridge holder, oriented to the right of the first wrench and forming a 90° angle with the first wrench.
- Once positioned, the two wrenches should be able to be held in one hand.



3. Tightening the Connection:

- While holding the two wrenches in one hand, use your other hand to grasp the holder and column, with your thumb placed at the end of the cartridge holder. **Use your thumb to provide positive pressure, driving the holder into the column port. This step is critical to prevent any gap or void forming between the tube and column port during installation, which can result in peak shape issues.**



- While providing positive pressure, use your other hand to close the angle between the wrenches by turning the wrench on the flat area of the holder towards the column end-fitting wrench. This should result in approximately a ¼ turn.
 - **Positive pressure MUST BE APPLIED as you are wrench tightening to prevent void formation.**
- If leaking is observed, the connection can be tightened further. Be careful not to overtighten. About 15 psi of torque is sufficient to seat (swage) the ferrule of the holder to the tubing nib, providing a pressure rating of up to 20,000 psi (1,378 bar).
- 4. **Completion:**
 - The cartridge holder is now securely connected to the column.
 - Once installed, we recommend against removing the holder from the column as these risks wear and tear to the swaged connection. We recommend dedicating one new holder per column.

By following these steps, you will ensure a secure and leak-free connection between the holder and the column.

STEP 2.

Connect Your Cartridge into Holder

- A. Select a guard cartridge. Match the correct cartridge phase to your column chemistry and dimension. Inspect the male end of the guard cartridge to ensure it is free of scratches, debris, and particulates.
- B. 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.
- C. Place one 5/16 in. wrench on the flat area of the cartridge and one 5/16 in. wrench on the flat area of the holder. Turn the wrench on the cartridge flats clockwise, about ¼ turn or until leak free.



Do not turn the wrench on the holder flats.

STEP 3.

Connect Tubing into the SecurityGuard ULTRA Holder-Cartridge Assembly

- A. Make sure the tubing from the injector is cut smooth and at a right angle (Phenomenex recommends precision pre-cut tubing).
- B. 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).
- C. Connect the tubing all the way down into the inlet (female end) of the holder-cartridge assembly. The tube should be centered and pushed into the female end until it cannot go further.
- D. 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 (AQ0-8530) designed for high-pressure applications.
- E. 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.
- F. 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?

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 (RS) 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. Inspect the male end of the cartridge to ensure it is free of scratches, debris, and particulates.

STEP 2. Changing Your SecurityGuard ULTRA Cartridge

- A. 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.
- B. 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.

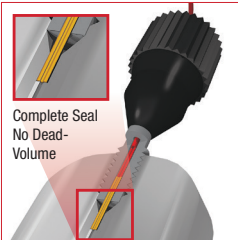
NOTE: Failure to follow these instructions may result in misalignment of the SecurityGuard ULTRA Column Protection System, resulting in damage, leaking or degraded chromatography. The holder may be swaged to virtually any brand or manufacturer’s column. However, once swaged to the column, Phenomenex 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.

For more information on SecurityGuard products, contact our [Live Chat](#).

SecurityLINK™ UHPLC Fingertight Fittings

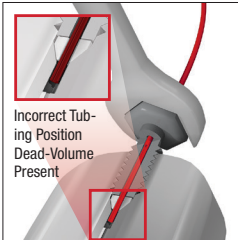
- No tools required for quick and easy installation
- Fitting self-adjusts at column inlet to ensure zero dead-volume for better chromatographic results
- Torque Limiting Technology prevents system and column port damage
- UHPLC and HPLC compatibility: pressure rated to 19,000 psi (1,310 bar)

SecurityLINK UHPLC Fitting System



VS.

Poorly Connected Conventional Fittings (Nut and Ferrule)



Installation Instructions

Insert SecurityLINK UHPLC fitting into column port or LC system



Fingertighten until first “CLICK” feedback is received. Connection complete!



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

Learn More: www.phenomenex.com/SecurityLINK