

IMPORTANT  
IMPORTANTE  
WICHTIG  
IMPORTANTI  
重要 请注意

#### SecurityGuard Standard

#### SecurityGuard Prep

##### Analytical



(KJ0-4282)

##### SemiPrep



(AJ0-9281)

##### PREP



(AJ0-8223)

(AJ0-8277)

# SecurityGuard™

## Instruction Manual

Guard Cartridge Systems for HPLC

Analytical-sized guard cartridge holder is patented



[www.phenomenex.com/SecurityGuard](http://www.phenomenex.com/SecurityGuard)

 **phenomenex**<sup>®</sup>  
...breaking with tradition™

# IMPORF

Assembly Instructions Inside  
Do not attempt to assemble  
before reading instructions

Instrucciones de Instalación  
No intente instalar antes de  
leer las instrucciones

Instructions de Montage  
A lire attentivement  
avant installation

Contiene Importanti Istruzioni  
di Montaggio Non procedere  
all'assemblaggio senza avere  
letto queste istruzioni

# RTANT



Um Beschädigungen an Ihrem Vorsäulenhalter zu vermeiden, lesen und befolgen Sie bitte die folgenden Installationsanweisungen

**警告：**必ず以下の手順に従って組み立てて下さい。手順が違いますと正しく組み立てができなかったり、ホルダーの損傷または漏れなどの原因になる場合がございます。

**警告：**如果没有按照下列步骤正确操作，则可能造成柱芯安装位置不准、损坏柱芯套和泄漏等后果。

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## **45 PREP Guard**

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## Instructions

**WARNING:** Failure to follow these instructions may result in misalignment of the cartridge, damage to the holder and leaking.

**CUIDADO:** Falta de seguir las instrucciones puede resultar en alineación defectuosa del cartrhucho, daño al soporte y goteo.

**ATTENTION:** Ne pas suivre les instructions de montage peut entraîner un mauvais alignement de la cartouche ou endommager le support et donc entraîner des fuites.

**ATTENZIONE:** Se queste istruzioni non vengono seguite possono capitare disallineamenti della cartuccia, danni all'holder e perdite.

**WARNUNG:** Bei Nichtbefolgung dieser Anleitung kann sich der Vorsäulenhalter verklemmen, was zu Beschädigung bzw. Undichtigkeiten führen kann.

**警告：**必ず以下の手順に従って組み立ててください。手順が違いますと正しく組み立てができなかったり、ホルダーの損傷または漏れなどの原因になる場合がございます。

**警告：**如果没有按照下列步骤正确操作，则可能造成柱芯安装位置不准、损坏柱芯套和泄漏等后果。

# Cartridge and Holder Selection

IF YOUR HPLC COLUMN ID (mm) IS:



2.0-3.0



3.2-8.0



9.0-16.0



18.0-29.0



30.0-49.0

USE CARTRIDGES (mm):



4.0 x 2.0



4.0 x 3.0



10 x 10.0



15 x 21.2



15 x 30.0

USE HOLDER:



KJ0-4282

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page 38



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AJ0-8277







## Analytical Guard Cartridge System (KJ0-4282)

Protecting all non core-shell and  $\geq 3 \mu\text{m}$  particle size columns with 2 to 8 mm ID Cartridges are pressure rated to Cartridges are pressure rated to < 5,000 psi (345 bar).

For UHPLC (Ultra High Performance LC) and all applications at higher pressures, use SecurityGuard™ ULTRA.



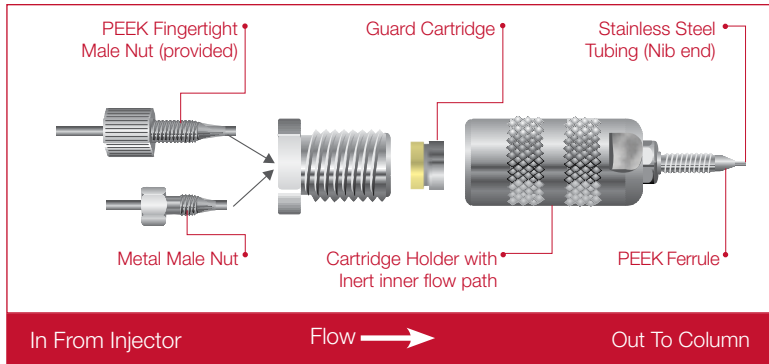
## Analytical Guard Cartridge System (KJ0-4282)



### Kit Contents:

- 1 Cartridge Holder
- 3 PEEK Ferrules
- 2 Stacking Rings
- 2 PEEK Fingertight Fittings
- 2 Wrenches

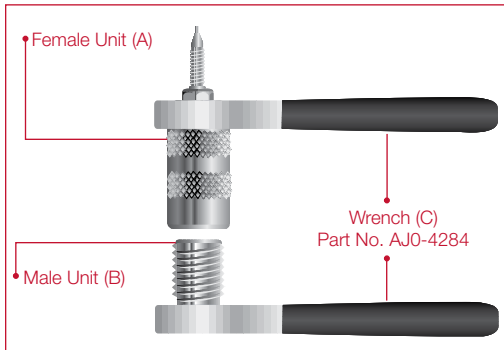
# Construction



# Holder Assembly

## Step 1

Unscrew male unit (B) from female unit (A). Use the wrenches (C) provided if necessary.



## Installation Video

[www.phenomenex.com/SecurityGuardInstallation](http://www.phenomenex.com/SecurityGuardInstallation)

#### Paso 1

Desenroscar la unidad macho (B) de la hembra (A). Usar las llaves (C) si es necesario.

#### Etape 1

Desserrer écrou mâle (B) et partie femelle (A). Utiliser les clés fournies (C) si nécessaire.

#### Passaggio 1

Svitare l'unità maschio (B) dalla femmina (A). Usare le chiavi (C) in dotazione se necessario.

#### Schritt 1

Öffnen Sie die obere (A) und die untere Verschraubung (B) mit Hilfe der beigefügten Schraubenschlüssel (C).

#### ステップ 1

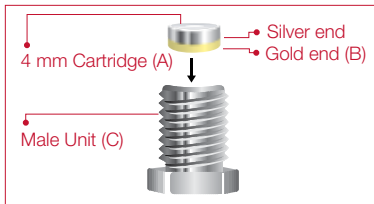
メールユニット (B) をフィーメールユニット (C) のねじからはずしてください。付属のレンチ (C) をお使いいただければ便利です。

#### 第一步

请将螺帽（图中部件B）从螺母上（图中部件A）拧开，如有必要，请使用配备的扳手（图中部件C）

## Step 2

Place the male unit on a clean, flat surface. Insert one 4 mm cartridge (A) into the top of the male unit as shown. **Male unit (C) must always be upright when inserting cartridge. Always insert cartridge into the male unit first.** The gold end (B) of the cartridge must always be facing down into the male unit.



## Paso 2

Colocar la Unidad macho en una superficie plana. Introducir un cartucho de 4 mm en la parte superior de la unidad macho. La unidad macho estará vertical cuando se introduzca el cartucho. Siempre introduzca primero el cartucho en la unidad macho. El lado dorado del cartucho debe ser colocado siempre con frente **abajo** dentro de la unidad macho.

## Etape 2

Toujours maintenir en position verticale! Placer la partie mâle (C) sur une surface plane. Insérer une cartouche de 4 mm (A) dans le logement prévu dans l'écrou. La partie mâle doit toujours être maintenue en position verticale. Toujours installer la cartouche dans la partie mâle en premier. Le côté doré (B) de la cartouche doit toujours être installé de façon à être en contact avec l'écrou.

## Passaggio 2

Posizionare l'unità maschio (C) su una superficie piatta. Inserire una cartuccia da 4 mm (A) sull'unità maschio come mostrato in figura. Tenere SEMPRE l'unità maschio in posizione verticale durante l'inserimento della cartuccia. Inserire SEMPRE la cartuccia prima nell'unità maschio. Il lato con la banda di colore oro (B) deve sempre essere rivolto in basso nell'unità maschio.

## Schritt 2

Setzen Sie die untere Verschraubung (C) auf eine ebene Oberfläche und plazieren Sie eine 4 mm oder 10 mm-Vorsäule (A) auf die Spitze der oberen Verschraubung, wie in der Abbildung gezeigt. Die untere Verschraubung muß immer aufrecht stehen, wenn die Vorsäule aufgesetzt wird. Setzen Sie die Vorsäule immer zuerst in die untere Ver-

schraubung. Die Vorsäule sitzt dann richtig, wenn sie beim Umdrehen der Verschraubung (C) nicht herausfällt. Der Goldring (B) der Vorsäule muß immer nach unten zeigen, wenn die Vorsäule eingesetzt wird.

## ステップ 2

平らな面の上にメールユニット (C) を置いて下さい。図にあるメールユニットのトップの中に 4 mm のカートリッジ (A) を差し込んで下さい。メールユニット (C) はカートリッジ (A) を入れる時は必ずいつも上向きにしなければなりません。必ず最初にメールユニット (C) の中にカートリッジ (A) を挿入して下さい。

カートリッジのゴールドエンド (B) は必ず、メールユニット (C) の中に下向きにしておいて下さい。

(continued)

## Step 2 (continued)

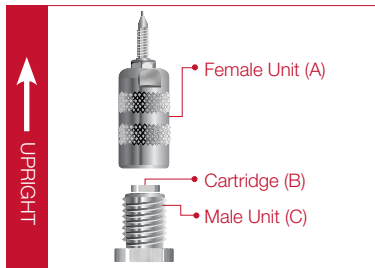
### 第二步

请将螺帽放置于水平的表面上。请如在第14页上之图所示将4毫米的柱芯（图中部件A）放入螺帽单元（图中部件C）的上端凹入处。放入柱芯时，必须使螺帽单元保持直立向上。必须首先将柱芯放入螺帽单元内。

柱芯金色的边端（图中B处）必须总是面朝下安插于螺帽单元内。

### Step 2a

Holding male unit and cartridge in the **upright** position, screw the female unit back onto the male unit and hand tighten. Wrench tighten male unit into female up to  $\frac{1}{4}$  turn to seal the cartridge inside the holder.



Manteniendo la unidad macho (C) y el cartucho (B) en posición vertical, enrosque la unidad hembra (A) en Siempre la unidad macho manualmente. Con las llaves apriete de  $\frac{1}{4}$  de vuelta vertical para ajustar el cartucho en el soporte.



En maintenant la partie mâle (C) et la cartouche (B) verticalement, visser la partie femelle (A) et bloquer manuellement. Bloquer à l'aide de la clé (1/4 tour maximum).

Tenendo l'unità maschio (C) e la cartuccia (B) in posizione verticale avvitare l'unità femmina (A) sopra l'unità maschio stringendo solo a mano. Stringere con le chiavi in dotazione l'unità maschio contro l'unità femmina per 1/4 giro e comunque in modo da assicurare la perfetta tenuta.

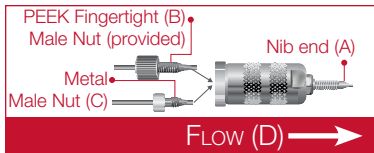
Halten Sie die untere Verschraubung (C) und die Vorsäule (B) weiterhin in der aufrechten Position und drehen Sie die obere Verschraubung (A) mit der Hand bis zum Anschlag auf die untere Verschraubung. Ziehen Sie die Verschraubung jetzt mit den Schraubenschlüsseln eine weitere 1/4 Umdrehung fest. Vorsicht – Nicht überdrehen!

メールユニット (C) とカートリッジ (B) を上向き  
位置に向けて支えて下さい。フィーメールユニット  
(A) をメールユニット (C) の上にかぶせて回して、手  
きつく締めて下さい。ホルダーの内側のカートリッジ  
(B) をシールする為、メールユニット (C) をフィー  
メールユニット (A) の中に1/4の深さまでレンチを使  
ってしっかりと締めて下さい。

(注意：きつく締めすぎないでください。)

请保持螺帽单元（图中部件C）与柱芯（图中部  
件B）直立向上，并用手将螺母（图中部件A）回  
拧入螺帽上，直到拧紧为止。再用扳手将螺帽拧  
紧入螺母内四分之一圈，以便使柱芯固定于柱芯  
套内。请注意：不要拧得过紧。

## Step 3



Connect the tubing from the injector to the female end of the cartridge holder, using the PEEK fingertight male nut (B, provided) or a Parker-compatible metal male nut, such as Parker, Valco or Phenomenex brand.

Phenomenex recommends the use of PEEK fingertight male nuts (B) whenever possible. Should a metal male nut and ferrule be used (C), it must be Parker-compatible. The metal

male nut and ferrule assembly must be swaged (tightened and crimped) to the capillary tubing at the exact port depth of the cartridge holder.

**Do not use pre-swaged assemblies.** The use of pre-swaged nut and ferrule assemblies, especially Waters-type, may result in leakage, band broadening or damage to the holder.

**IMPORTANT:** Before proceeding to Step 4, turn on the pump at a low flow rate to flush and purge any air from the unit (for about one minute).

### Paso 3

Conecte el tubo que viene del inyector al terminal hembra (A) del soporte del cartucho, use la tuerca macho de PEEK (Incluida) (B) o una tuerca de metal compatible Parker (como Parker, Valco o Phenomenex) (C).

Phenomenex recomienda el uso de tuercas macho de PEEK siempre que sea posible. Si tuviera que usar tuercas metálicas deben ser compatibles con Parker. Estas tuercas no deben estar prefijadas al tubo capilar antes de introducirlas a la profundidad correcta de la entrada de la columna. No use conectores prefijados. Su uso podría producir goteos, ensanchamiento de picos o daños al soporte. No use conectores tipo Waters.

**IMPORTANTE:** Antes de realizar el paso 4, ponga en funcionamiento la bomba a flujo (D) lento por un minuto para purgar de aire la unidad.

### Etape 3

Connecter le tube sur le raccord femelle

(A) du support en utilisant le raccord PEEK (B) fourni ou un écrou mâle en inox (Parker, Valco ou Phenomenex) (C). Phenomenex recommande l'utilisation de raccord manuel PEEK chaque fois qu'il est possible de le faire. Si un écrou et une ferrule en acier inox doivent être utilisés, toujours utiliser un ensemble neuf. Le tube capillaire  $1/16$ " doit être poussé au fond du raccord avant de serrer la ferrule. Ne jamais connecter de tube inox avec une ferrule "pré-serti". L'utilisation d'un ensemble "pré-serti" est toujours à l'origine de fuites.

**IMPORTANT:** Avant de passer à l'étape 4, pomper à faible débit (D) pour purger totalement l'air du circuit (environ 1 minute).

## Step 3 (continued)

### Passaggio 3

Collegare il tubo proveniente dall'iniettore nel terminale femmina (A) dell'holder utilizzando il Nut in PEEK (B) in dotazione o un nut in acciaio di tipo Parker (C). Phenomenex raccomanda l'utilizzo del PEEK fingertight in dotazione quando possibile. Se dovesse essere necessario usare nut e ferrula in acciaio, queste devono necessariamente essere di tipo Parker. La ferrula in acciaio deve essere esattamente posizionata alla distanza prevista per gli attacchi tipo Parker, ovvero a 0,090" (2,3 mm) dall'estremità del tubo. Non utilizzare ferrule già precedentemente utilizzate, specialmente se già usate con attacchi tipo Waters perché ciò potrebbe comportare perdite, allargamento dei picchi e danni all'holder.

**IMPORTANTE:** Prima di collegare la colonna avviare la pompa a basso flusso (D) per almeno 1 minuto in modo da rimuovere l'aria presente nell'holder.

### Schritt 3:

Verbinden Sie die vom Injektor kommende Kapillare mit dem hinteren Teil des Vorsäulenhalters. Verwenden Sie möglichst PEEK-Muttern (mitgeliefert) (B) oder eine Parker-/Valco-kompatible Mutter(C). Phenomenex empfiehlt die Verwendung von PEEK-Muttern. Sollten Metallmuttern verwendet werden (nut und ferrule), müssen sie Parker-/Valco-kompatibel sein. Achten Sie bitte darauf, dass die Kapillare beim Festziehen die optimale Länge hat. Bitte benutzen Sie niemals vorkonfektionierte Teile. Ein zu langes Kapillarende kann beim Festschrauben den Vorsäulenhalter beschädigen oder zu Peakverbreiterungen und Undichtigkeiten führen.

**WICHTIG:** Bevor Sie mit Schritt 4 fortfahren, spülen Sie bitte das Vorsäulensystem bei kleinem Fluss (D) für ca. 1 Minute, um eventuell vorhandene Luft herauszudrücken.

## Step 3 (continued)

### ステップ 3

付属のピーク・フィンガータイト・メイルナット (B)、または、パーカー・コンパチブル・メタル・メイル・ナット(C) (バルコヤフェノメックス社製) を使って、インジェクタからカートリッジのフィーメール・エンド (A) に配管を接続して下さい。フェノメックスはできる限り、ピーク・フィンガータイト・メイルナット (B) を使う事をお勧めます。メタル・メイル・ナット(C)とフェルールが使われるなら、パーカー・コンパチブルでなければなりません。メタル・メイル・ナット(C)とフェルールの組み立てはカートリッジ・ホルダーのぴったりの深さのところにフェルールを固定して下さい。(しっかりと締めてひだをつけて下さい。) あらかじめフェルールが固定されているものは使用しないで下さい。それを使用しますと、特に Waters タイプでは、漏れの原因になったり、拡散が生じたり、またはホルダーへの損傷になったりもします。

**重要：**ステップ4に進む前に、低いフロー(D)に設定して、ポンプを回して、ガードカートリッジから、空気を除いて下さい。(約1分間)

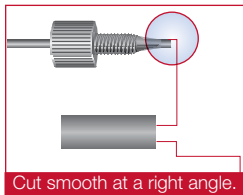
### 第三步

请使用配备的PEEK材料(多醚酮醚, 即Polyether ether ketone) 做的手拧插入式接头(图中部件B), 或同Parker牌同形的金属插入式接头(图中部件C, 如Parker牌、Valco牌、或Phenomenex牌等), 将进样阀出口的管路连接到柱芯套上端凹入处。Phenomenex 公司建议用户尽量使用用PEEK材料做的手拧插入式接头。如果一定要使用金属插入式接头和加固环, 则必须使用同Parker牌同形的零件。金属插入式接头和加固环组件必须经拧紧和旋压而包住毛细管路, 其深度必须等同于柱芯套上孔道的深度。请勿使用预先经过旋压成形的组件。使用预先经过旋压成形的接头和加固环组件, 尤其是Waters牌组件, 可能会造成泄漏, 峰形展宽、或损坏柱芯套等后果。

**请注意：**在进行第四步前, 请先启动色谱泵以低速冲洗大约一分钟, 从该部件中赶走气泡(如图中D处所示)。

## Step 3a

The  $\frac{1}{16}$  inch tubing must be cut smooth at a right angle, or a poor connection will result.



El tubo de  $\frac{1}{16}$ " se debe cortar en ángulo recto o resultará en una mala conexión.

Le tube  $\frac{1}{16}$ " doit être coupé parfaitement perpendiculairement pour garantir une bonne connection.

Il tubo da  $\frac{1}{16}$ " deve essere tagliato in modo regolare e con taglio a  $90^\circ$  per avere una buona connessione.

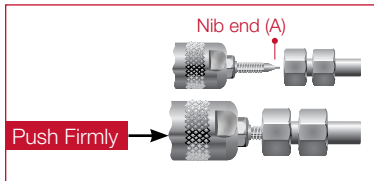
Die  $\frac{1}{16}$ " Kapillare muß glatt und gerade abgeschnitten sein, damit man eine optimale Verbindung erhält.

配管がしっかりと接続できますように  $\frac{1}{16}$ " チューブは正しい角度で、また切り口が滑らかになるように切ってください。

切割  $\frac{1}{16}$  英寸管路时，必须切割出成直角的光滑的剖面，否则可能造成连接不良的后果。

## Step 4

Complete the installation by **firmly pushing** the nib end (A) of the cartridge holder straight into the column end-fitting, then **hand tighten** clockwise. Make sure the nib end is **firmly** pushed into the column before tightening!



## Paso 4

Asegúrese que el terminal está insertado írmemente antes de enroscar manualmente. Inserte írmemente.

## Etape 4

Assurez-vous que l'embout soit bien poussé à l'intérieur du raccord avant de visser. Pousser írmemente.



#### Passagio 4

Assicuratevi che il terminale sia ben inserito nella colonna prima di stringere!

#### Schritt 4

Die Kapillarspitze des Halters muss fest auf die analytische Säule aufgesetzt werden, bevor Sie den Halter mit der Hand verschrauben. Fest anziehen!

#### ステップ 4

カートリッジ・ホルダーのニブ・エンド(突端)をまっすぐにカラム・エンドの中にしっかりと押しながら入れ、時計まわりに手で締める事で取付けは完了です。ニブ・エンドは締める前にカラムの中にしっかりと、はまっている事をお確かめ下さい。

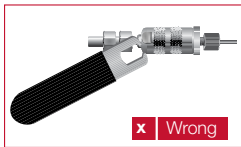
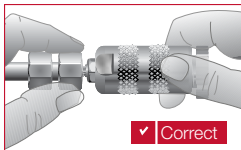
#### 第四步

请将柱芯套上的自适应接头(第8页图中部件A)紧紧地推入色谱柱的末端接合口,并以顺时针的方向用手拧紧,以便完成安装程序。拧紧前,请确认自适应接头是否已经稳固地插入色谱柱中。



## Step 4a

**Never** use wrenches to tighten cartridge holder to column. This can break off the nib end. **Hand tighten only.**



Nunca use llaves para enroscar el soporte de cartucho a la columna, puede romper el terminal. Solo enrosque manual.

✓ = Correcto    ✗ = Incorrecto

Ne jamais utiliser de clé pour visser le support de précolonne sur la colonne: vous risquez de casser l'embout PEEK. Serrage manuel uniquement.

✓ = Correct    ✗ = Incorrect

Non usare MAI la chiave per stringere la colonna all'holder. Stringere solo a mano.

✓ = Correcto    ✗ = Errato

Verwenden Sie NIEMALS Schraubenschlüssel, um den Vorsäulenhalter mit der analytischen Säule zu verschrauben. Die höhere Krafteinwirkung mittels des Schraubenschlüssels kann dazu führen, dass die Kapillarspitze abbricht. Bitte nur mit der Hand anziehen!

✓ = Richtig      ✗ = Falsch

カートリッジ・ホルダーをカラムに締めるためにレンチは絶対使わないで下さい。ニブ・エンドを壊しかねません。必ず手で締めて下さい。

请勿使用扳手将柱芯套拧紧到色谱柱上，否则可能折断自适应接头，只能用手拧紧！

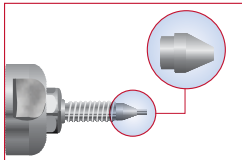
✓ = 正确      ✗ = 错误

# Maintenance

PEEK ferrules can become damaged by over-tightening and over time with regular use. Three replacement ferrules have been provided in your kit. Replace the PEEK ferrule at the nib end of the cartridge holder as necessary to prevent leaking.

## Replacement Parts

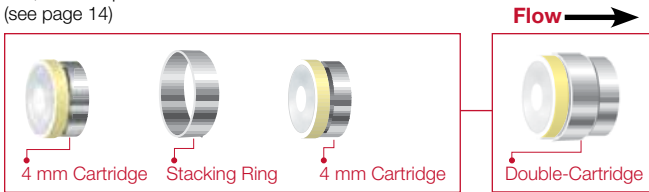
Part No.	Description	Unit
AJ0-4283	PEEK Ferrules	3/pk
AJ0-4285	Stacking Rings	2/pk
AQ0-1389	PEEK Fingertight Male Nuts	10/pk
AJ0-4284	SecurityGuard™ Wrenches	2/pk



# Extra Protection

## Double-Cartridge Stacking Method

To maximize contaminant removal it is possible to stack two 4 mm cartridges in the cartridge holder without any holder modification. In this configuration, when the first cartridge is exhausted, contaminants will still be retained by the second cartridge. The gold ends of the cartridges must always face in the same direction, and be placed down into the male unit. (see page 14)

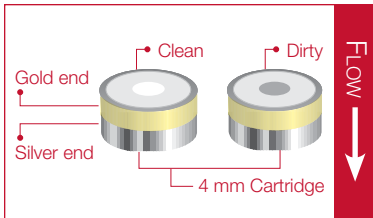


# Cartridge Replacement

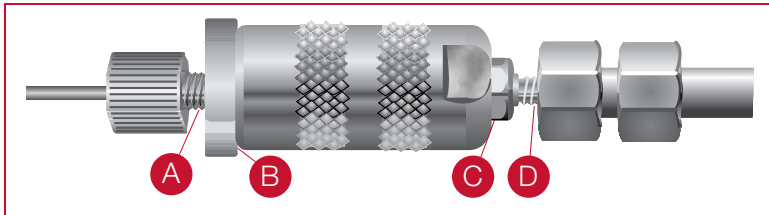
## Take Advantage of the Direct-View Feature!

Don't forget to visually check your cartridge periodically for contaminant build-up. If either significant discoloration or particle build-up on the inlet side (the gold end) of the cartridge is observed, it is time to replace the cartridge. If it looks OK, the cartridge may be reinstalled for further use. This feature gives you the opportunity to change your cartridge before your analytical column becomes fouled!

If the contaminants are colorless, replace the cartridge as often as needed to maintain acceptable chromatographic performance.



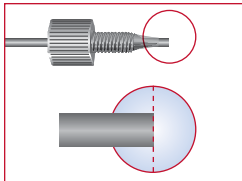
# Troubleshooting: Where is the Leak?



## Troubleshooting (continued)

### A. The fingertight fitting and the male unit:

- Make sure you did not use a pre-swaged nut-ferrule-tubing assembly
- If you used a metal nut and ferrule, make sure it is Parker-compatible
- Make sure you used tubing with  $\frac{1}{16}$  inch OD
- Make sure you seated the tubing all the way down into the holder
- Make sure the tubing was cut smoothly at a right angle
- Make sure you did not over-tighten the fingertight fitting



### B. The male unit and female unit:

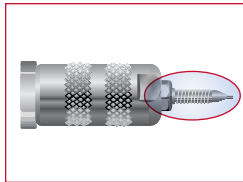
- Look inside the male unit to make sure the spring ring is intact — this ring secures the cartridge in place
- Make sure the cartridge is seated flat inside the male unit
- Make sure you wrench tightened the male and female units together an additional  $\frac{1}{4}$  to  $\frac{1}{2}$  turn after hand tightening





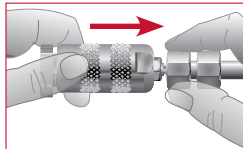
### C. The holder body and the floating hex nut:

- If the cartridge holder was dropped or excessive torque was placed on the nib end, the stainless steel tubing can become disengaged from an internal PEEK insert into which it is positioned, thereby disrupting the flow path. To reposition the stainless steel tubing in the PEEK insert, the holder must be disassembled.



### D. The nib end and the column endfitting:

- Make sure you firmly pushed the nib end of the Security-Guard™ Standard cartridge holder straight into your column's end-fitting as far as it will go, before you finger tighten it to your column
- Make sure the PEEK ferrule at the end of the floating hex nut is present and in good condition
- Replace the PEEK ferrule as needed; PEEK ferrules can become damaged by over-tightening and over time with regular use







SemiPrep Guard Cartridge System (AJ0-9281)

Protecting 9 to 16 mm ID Columns  
(Using 10 mm ID Cartridges)

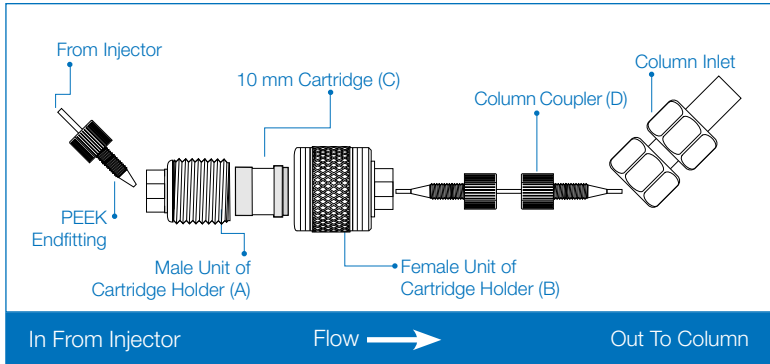
# SemiPrep Guard Cartridge System (AJ0-9281)



## Kit Contents:

1 Cartridge Holder (All Stainless Steel)

# Construction



# Holder Assembly

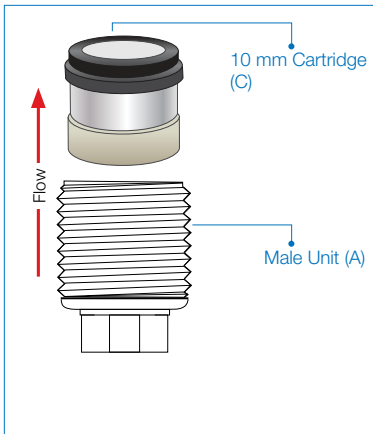
## Step 1

Unscrew male unit (A) from female unit (B). Use wrenches if necessary (not included). Inspect the inside of each unit, including threads and inner faces. Clean and remove any visible debris.

## Step 2

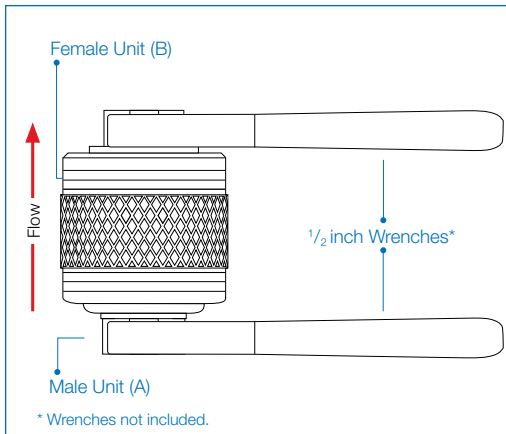
Place the male unit (A) on a clean, flat surface. Insert one 10 mm cartridge (C) into the top of the male unit as shown. Insert the cartridge with the black end facing up.

**Male unit must always be upright when inserting the cartridge. Always insert cartridge into the male unit first.**



## Step 3

Holding male unit (A) and cartridge (C) in the upright position, screw the female unit (B) back on to the male unit and hand tighten. Tighten male unit with  $\frac{1}{2}$  inch wrench into female unit up to  $\frac{1}{4}$  turn to seal the cartridge inside the holder.

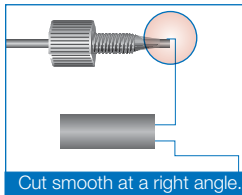


## Step 4

Connect the tubing from the injector to the male end of the cartridge holder using the PEEK fingertight male nut (AQ0-1389) or a Parker-compatible metal male nut, such as Parker, Valco or Phenomenex brand.

Phenomenex recommends the use of PEEK fingertight male nuts (AQ0-1389) whenever possible. Should a metal male nut and ferrule be used, it must be Parker-compatible. The metal male nut and ferrule assembly (AQ0-3018) must be swaged (tightened and crimped) to the capillary tubing at the exact port depth of the cartridge holder.

**Do not use pre-swaged assemblies.** The use of pre-swaged nut and ferrule assemblies, especially Waters-type, may result in leakage, band-broadening or damage to the holder.



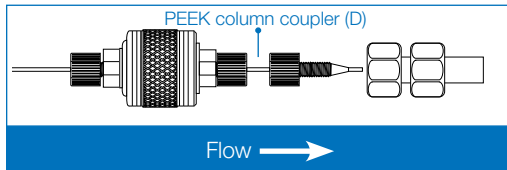
Whether PEEK or metal  $\frac{1}{16}$  inch OD tubing is used, the tubing must be cut smooth at a right angle or a poor connection will result.



## Step 5

**IMPORTANT:** Before proceeding to Step 6, turn on the pump at a low flow rate to flush and purge any air from the unit (for about one minute). If leaking occurs between the Male Unit of Cartridge Holder and the Female Unit of Cartridge Holder reset the guard cartridge. Remove the cartridge, use a Kimwipe® (or other low lint wipe) to dry the threads of the holder, then reinstall cartridge and tighten the holder with  $\frac{1}{2}$  inch wrench.

## Step 6



# Maintenance

PEEK fingertight male nuts can become damaged by overtightening, as well as over time with regular use. Be sure to have additional replacement nuts on hand (AQ0-1389).

# Cartridge Replacement

If you experience any of the following symptoms, consider the possibility that the cartridge may need replacement:

- Increasing system backpressure
- Baseline symptoms (drifting, ghost peaks)
- Retention time symptoms (drifting, irreproducible)
- Loss of peak resolution (merging, shifting)
- Abnormal peak shape (broadening, shortening)
- Loss of accuracy or precision



**IMPORTANT!** Should a used cartridge be removed from the holder for any reason, the cartridge should be discarded and replaced with a new one. Should a used cartridge be re-installed, it is possible that the direction of flow will be accidentally reversed and earlier trapped contaminants will be flushed directly onto the head of the main column. **Severe damage and/or irreversible degradation in column performance may result.**





**SecurityGuard™**  
***PREP***

PREP Guard Cartridge Systems

AJ0-8223 Protecting 18 to 29 mm ID Columns  
(Using 21.2 mm ID Cartridges)

AJ0-8277 Protecting 30 to 49 mm ID Columns  
(Using 30 mm ID Cartridges)

# PREP Guard Cartridge Systems

## AJ0-8223

Protecting 18 to 29 mm ID Columns



### Kit Contents:

- 1 PREP Cartridge Holder
- 1 PREP Column Coupler

## AJ0-8277

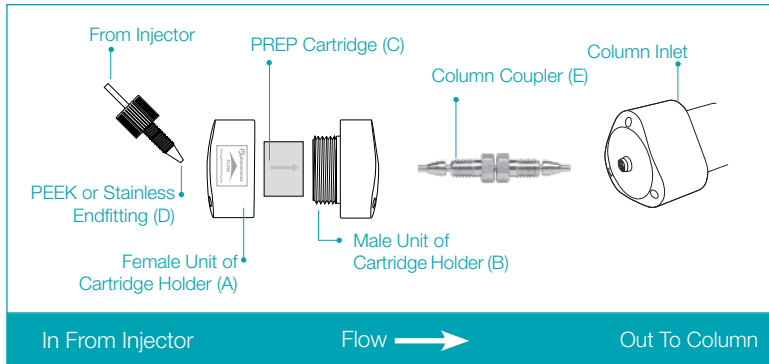
Protecting 30 to 49 mm ID Columns



### Kit Contents:

- 1 PREP Cartridge Holder
- 1 PREP Column Coupler

# Construction



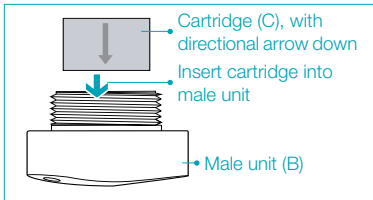
# Holder Assembly

## Step 1

Unscrew male unit (B) from female unit (A). Inspect the inside of each unit, including threads and inner faces. Clean and remove any visible debris. Inspect, visually and by feel, to ensure the O-rings in both the male and female units are smooth (not rough, worn or cut) and evenly positioned inside their retaining grooves. Replace O-rings as necessary (pp. 56 and 66).

## Step 2

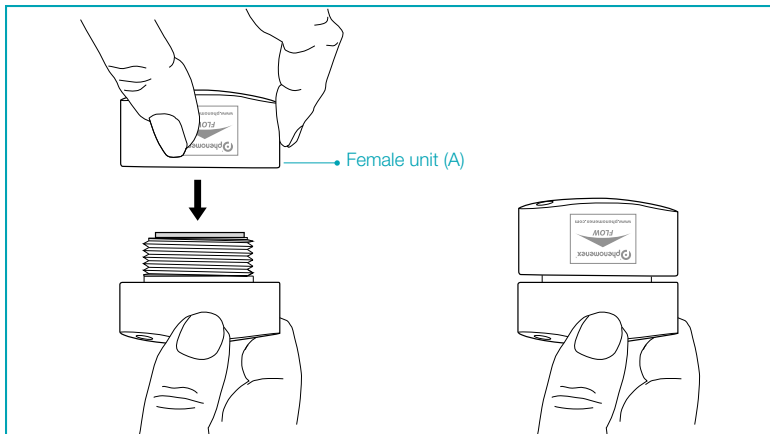
Place the male unit (B) on a clean, flat surface, with the triangular body down. Insert one PREP cartridge (C) into the top of the male unit as shown, with the directional arrow on the cartridge facing down. **Male unit must always be upright when inserting the cartridge. Always insert cartridge into the male unit first.**



## Step 3

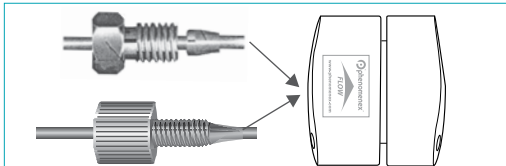
Hold the male unit (B) and cartridge (C) in the upright position in your hand as shown. Screw the female unit (A) onto the male unit and hand tighten. No tool or wrench is needed to assemble or unassemble. Hand tighten the female unit into male unit until you can tighten no further. Back off (reverse) about  $\frac{1}{8}$  of a turn until both male and female triangular bodies are aligned. The cartridge is now sealed inside the holder. The holder assembly is now complete.





## Step 4

Connect tubing (PEEK or stainless endfitting (D)) from the injector to the female (A) end of the cartridge holder using a PEEK fingertight male nut (AQ0-1389) or a Parker-compatible metal male nut, such as Parker, Valco, or Phenomenex brand. Proper seating of the fitting will eliminate voids or leaking. It may be helpful to lay the PREP guard holder on a clean, flat surface while you are doing this. Do not allow holder to hang or be suspended without support.



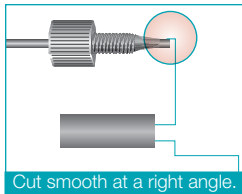
Tubing with endfitting from injector into female end of PREP Guard holder

## Step 4 (continued)

To make this connection, Phenomenex recommends  $\frac{1}{16}$  inch OD x 0.020 inch ID stainless steel tubing (AT0-0465 or AT0-0466) along with a Parker-compatible metal male nut and ferrule assembly (AQ0-3018). See ordering information. Set the capillary tubing at the exact port depth of the cartridge holder and hand tighten the nut and ferrule assembly. Hold the PREP guard unit firmly in place with one hand and use a  $\frac{9}{16}$  inch wrench to tighten  $\frac{1}{4}$  turn more to swage (crimp) the nut and ferrule assembly to the capillary tubing.

**DO NOT use pre-swaged assemblies.** The use of pre-swaged nut and ferrule assemblies, especially Waters-type, may result in leakage, band-broadening, or damage to the holder.

Whether PEEK or metal  $\frac{1}{16}$  inch OD tubing is used, the tubing must be cut smooth at a right angle, or a poor connection will result.



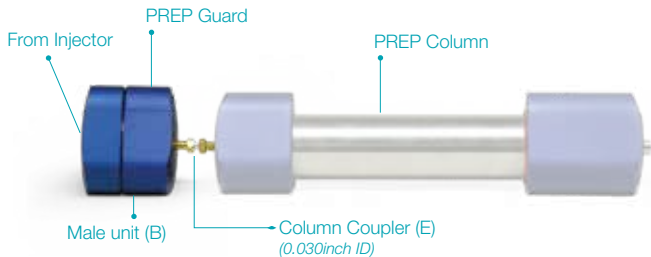
## Step 5

**IMPORTANT:** Before proceeding to Step 6, turn on the pump at a low flow rate to flush and purge any air from the unit (for about one minute).

## Step 6

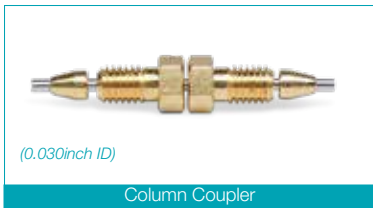
Connect one end of the column coupler (AQ0-8376) (E) to the outlet end (Male unit, B) of the holder, and the other end to the column. Proper seating of these fittings will eliminate voids or leaking. Hand tighten the fittings, then using a  $\frac{1}{4}$  inch wrench, tighten  $\frac{1}{4}$  turn more to ensure a leak-tight connection. Again, it may be helpful to lay the column and PREP guard holder out on a flat surface while you are doing this.

**CAUTION!** It is not recommended that the column and PREP guard holder, once connected, hang or be suspended without support. Either lay the entire assembly flat, or utilize a suitable stand with clamps to support both the column and PREP guard holder.



# Maintenance and Troubleshooting

**Note:** The SecurityGuard™ PREP Holder comes already assembled in a hand tight condition. Use hands to assemble and unassemble; no wrenches are necessary to open. For the connection between the PREP holder and the column use the column coupler (AQ0-8376) provided or a suitable alternative.



Proper seating of these fittings will eliminate voids or leaking. Hand tighten the fittings, then using a 1/4 inch wrench, tighten up to 1/4 turn more to ensure a leak-tight fitting.

**DO NOT use pre-swaged assemblies.** The use of pre-swaged nut and ferrule assemblies, especially Waters-type, may result in leakage, band-broadening, or damage to the holder.

Whether PEEK or metal 1/16 inch OD tubing is used, the tubing must be cut smooth at a right angle, or a poor connection will result.

**CAUTION!** Avoid over-tightening the male nut and ferrule. This may result in damage to the holder.



**Cartridge Replacement.** Periodic replacement of the cartridge is required to maintain adequate column protection (see ordering information). Cartridge lifetime will vary depending on the application.

**IMPORTANT!** If a used cartridge is removed from the holder for any reason, consider discarding and replacing with a new one. Should a used cartridge be re-installed it is possible that the direction of flow will be accidentally reversed and earlier trapped contaminants will be flushed directly onto the head of the main column. Severe damage and/or irreversible degradation in column performance may result. Each SecurityGuard PREP cartridge is labeled with a directional arrow to ensure proper positioning and flow. Whenever a cartridge is installed or reinstalled, make certain the directional arrow is pointing down from its position in the male unit of the holder (follow the Holder Assembly instructions on page 48).

# O-Ring Replacement

Periodic replacement of the O-rings is required to maintain a proper seal (see ordering information). O-ring lifetime will vary depending on the application.

The most important factor affecting O-ring lifetime is the amount of torque applied when assembling the unit. Since the unique design of SecurityGuard™ PREP eliminates the possibility of over-torqueing, installed O-rings should last quite a while. Check for leaks often, and from time to time, visually check the O-rings for wear and tear. Replace as needed (p.66).

If a leak is detected, disassemble the holder and visually inspect the positioning of each of the two O-rings. Feel by hand to ensure the O-rings are smooth and evenly positioned inside the retaining grooves. Reinstall the cartridge and reassemble the holder, as per the instructions on page 48.



O-Rings



# Cartridge Replacement

If you experience any of the following symptoms, consider the possibility that the cartridge may need replacement:

- Increasing system backpressure
- Baseline symptoms (drifting, ghost peaks)
- Retention time symptoms (drifting, irreproducible)
- Loss of peak resolution (merging, shifting)
- Abnormal peak shape (broadening, shortening)
- Loss of accuracy or precision



# ORDERING INFORMATION

Cartridges are pressure rated to <5,000 psi (345 bar).

For UHPLC (Ultra High Performance LC) and all applications at higher pressures,  
use SecurityGuard™ ULTRA.

# Cartridges and Holders

If your HPLC column ID (mm) is:

2.0-3.0



3.2-8.0



9-16



18-29



30-49



Use Cartridges (mm):



4.0 x 2.0



4.0 x 3.0



10 x 10.0



15 x 21.2



15 x 30.0

Material	Description	pH Stability	4.0 x 2.0	4.0 x 3.0	10 x 10.0	15 x 21.2	15 x 30.0
Cartridges for General Purpose/Pharmaceutical			10/pk	10/pk	3/pk	ea	ea
<b>C18</b>	(ODS, Octadecyl)	1.5 - 10	AJ0-4286	AJ0-4287	AJ0-7221	AJ0-7839	AJ0-8301
<b>C12</b>	(Dodecyl)	1.5 - 10	AJ0-6073	AJ0-6074	AJ0-7275	AJ0-7842	AJ0-8304
<b>C8</b>	(MOS, Octyl)	1.5 - 10	AJ0-4289	AJ0-4290	AJ0-7222	AJ0-7840	AJ0-8302
<b>C5</b>	(Pentyl)	1.5 - 10	AJ0-4292	AJ0-4293	AJ0-7372	—	—
<b>C1</b>	(TMS)	2 - 9	AJ0-4298	AJ0-4299	—	—	—
<b>Silica</b>	—	—	AJ0-4347	AJ0-4348	AJ0-7223	AJ0-7229	AJ0-8312
<b>HILIC</b>	HILIC	1.5 - 8	AJ0-8328	AJ0-8329	AJ0-8902	—	—
<b>NH<sub>2</sub></b>	(Amino, Aminopropyl)	1.5 - 11	AJ0-4301	AJ0-4302	AJ0-7364	AJ0-8162	AJ0-8309
<b>CN</b>	(Cyano, Cyanopropyl)	2 - 7.5	AJ0-4304	AJ0-4305	AJ0-7313	AJ0-8220	AJ0-8311
<b>Phenyl</b>	(Phenylhexyl)	1.5 - 10	AJ0-4350	AJ0-4351	AJ0-7314	AJ0-7841	AJ0-8303
<b>PFP(2)</b>	(Pentafluorophenyl)	1.5 - 8	AJ0-8326	AJ0-8327	AJ0-8376	AJ0-8377	AJ0-8378

If your HPLC column ID (mm) is:



Material	Description	pH Stability	4.0 x 2.0	4.0 x 3.0	10 x 10.0	15 x 21.2	15 x 30.0
<b>Cartridges for General Purpose/Pharmaceutical</b>			<b>10/pk</b>	<b>10/pk</b>	<b>3/pk</b>	<b>ea</b>	<b>ea</b>
<b>SCX</b>	(SA, Strong Cation Exchanger)	2.5 - 7.5	AJ0-4307	AJ0-4308	AJ0-7369	AJ0-8595	AJ0-8596
<b>SAX</b>	(SB, Strong Anion Exchanger)	2.5 - 7.5	—	AJ0-4311	AJ0-7370	—	—
<b>RP-1</b>	(Reversed Phase - Polymer)	0 - 14	AJ0-5808	AJ0-5809	AJ0-7368	AJ0-8358	—
<b>Polar-RP</b>	(Ether-linked Phenyl)	1.5 - 7	AJ0-6075	AJ0-6076	AJ0-7276	AJ0-7845	AJ0-8307
<b>Fusion-RP</b>	(C18 Polar Embedded)	1.5 - 10	AJ0-7556	AJ0-7557	AJ0-7558	AJ0-7844	AJ0-8306
<b>AQ C18</b>	(Polar Endcapped C18)	1.5 - 7.5	AJ0-7510	AJ0-7511	AJ0-7512	AJ0-7843	AJ0-8305
<b>Gemini® C18</b>	(C18 TWIN™ Technology)	1 - 12	AJ0-7596	AJ0-7597	AJ0-7598	AJ0-7846	AJ0-8308
<b>Gemini NX-C18</b>	(C18 TWIN-NX™ Technology)	1 - 12	AJ0-8367	AJ0-8368	AJ0-8369	AJ0-8370	AJ0-8371
<b>Gemini C6-Phenyl</b>	(C6-Phenyl TWIN™ Technology)	1 - 12	AJ0-7914	AJ0-7915	AJ0-9156	AJ0-9157	AJ0-9158
<b>Luna® Omega Polar C18</b>	(Polar Functional C18)	1.5 - 10	AJ0-7600	AJ0-7601	AJ0-9519	AJ0-7603	AJ0-7604
<b>Luna® Omega PS C18</b>	(Mixed-Mode C18)	1.5 - 10	AJ0-7605	AJ0-7606	AJ0-9520	AJ0-7608	AJ0-7609

# Cartridges and Holders

If your HPLC column ID (mm) is:

2.0-3.0



3.2-8.0



9-16



18-29



30-49



Use Cartridges (mm):



4.0x2.0



4.0x3.0



10x10.0



15x21.2



15x30.0

Material	Description	pH Stability	4.0x2.0	4.0x3.0	10x10.0	15x21.2	15x30.0
<b>Cartridges for Protein and Polypeptide Reversed Phase</b>			<b>10/pk</b>	<b>10/pk</b>	<b>3/pk</b>	<b>ea</b>	<b>ea</b>

*For use with silica columns for separation of proteins and peptides, such as Jupiter® (Phenomenex).*

<b>Widopore C18</b>	(ODS, Octadecyl)	1.5 - 10	AJO-4320	AJO-4321	AJO-7224	AJO-7230	AJO-8313
<b>Widopore C5</b>	(Pentyl)	1.5 - 10	AJO-4326	AJO-4327	AJO-7371	—	—
<b>Widopore C4</b>	(Butyl)	1.5 - 10	AJO-4329	AJO-4330	AJO-7225	AJO-7231	AJO-8314
<b>Cartridges for Silica GFC</b>			—	<b>10/pk</b>	—	<b>ea</b>	—






*(Aqueous SEC) For use with silica GFC columns, such as Yarra™ and BioSep™ (Phenomenex).*

<b>GFC-2000</b>	—	2 - 7.5	—	AJO-4487	—	AJO-8588	—
<b>GFC-3000</b>	—	2 - 7.5	—	AJO-4488	—	AJO-8589	—
<b>GFC-4000</b>	—	2 - 7.5	—	AJO-4489	—	AJO-8590	—
<b>Cartridges for Polymer GPC</b>			—	<b>3/pk</b>	—	—	—

*(Organic GPC) For use with polymer GPC columns, such as Phenogel™ (Phenomenex)*

\*\*\* Not compatible with HFIP solvent.

If your HPLC column ID (mm) is:

2.0-3.0	3.2-8.0	9-16	18-29	30-49
				
<b>Use Cartridges (mm):</b>				
				
4.0 x 2.0	4.0 x 3.0	10 x 10.0	15 x 21.2	15 x 30.0
<b>10/pk</b>	<b>10/pk</b>	<b>3/pk</b>	<b>ea</b>	<b>ea</b>

Material	Description	pH Stability	Cartridges for Chiral				
			<b>10/pk</b>	<b>10/pk</b>	<b>3/pk</b>	<b>ea</b>	<b>ea</b>

For use with chiral columns, such as Lux<sup>®</sup> Cellulose-1, -2, -3, -4, i-Cellulose-5, i-Amylose-1, & Amylose-1, -2 (Phenomenex)

<b>Lux i-Amylose-1</b>	Amylose tris(3,5-dimethyl-phenylcarbamate)	2 - 9	AJ0-8640	AJ0-8641	AJ0-8642	AJ0-8643	AJ0-8644
<b>Lux i-Cellulose-5</b>	Cellulose tris (3, 5-dichloro-phenylcarbamate)	2 - 9	AJ0-8631	AJ0-8403	AJ0-8633	AJ0-8634	AJ0-8635
<b>Lux Cellulose-1</b>	Cellulose tris(3,5-dimethyl-phenylcarbamate)	2 - 9	AJ0-8402	AJ0-8403	AJ0-8404	AJ0-8405	AJ0-8406

Chiral cartridges continue on next page.

# Cartridges and Holders

If your HPLC column ID (mm) is:

2.0-3.0



3.2-8.0



9-16



18-29



30-49



Use Cartridges (mm):



4.0x2.0



4.0x3.0



10x10.0



15x21.2



15x30.0

Material	Description	pH Stability	4.0x2.0	4.0x3.0	10x10.0	15x21.2	15x30.0
Cartridges for Chiral			10/pk	10/pk	3/pk	ea	ea
<i>For use with chiral columns, such as Lux<sup>®</sup> Cellulose-1, -2, -3, -4, i-Cellulose-5, i-Amylose-1, &amp; Amylose-1, -2 (Phenomenex)</i>							
Lux Cellulose-2	Cellulose tris(3-chloro-4-methylphenylcarbamate)	2 - 9	AJ0-8398	AJ0-8366	AJ0-8399	AJ0-8400	AJ0-8401
Lux Cellulose-3	Cellulose tris(4-methylbenzoate)	2 - 9	AJ0-8621	AJ0-8622	AJ0-8623	AJ0-8624	AJ0-8625
Lux Cellulose-4	Cellulose tris(4-chloro-3-methylphenylcarbamate)	2 - 9	AJ0-8626	AJ0-8627	AJ0-8628	AJ0-8629	AJ0-8630
Lux Amylose-1	Amylose tris(3,5-dimethylphenylcarbamate)	2 - 9	AJ0-9337	AJ0-9336	AJ0-9344	AJ0-9338	AJ0-9339
Lux Amylose-1	Amylose tris(3,5-dimethylphenylcarbamate)	2 - 9	AJ0-9337	AJ0-9336	AJ0-9344	AJ0-9338	AJ0-9339
Lux AMP	—	1 - 11.5	AJ0-8475	AJ0-8476	—	—	—



If your HPLC column ID (mm) is:



Use Cartridges (mm):

Material	Description	pH Stability	4.0 x 2.0	4.0 x 3.0	10 x 10.0	15 x 21.2	15 x 30.0
<b>Cartridges for Carbohydrate/Organic Acid</b>			—	<b>10/pk</b>	—	—	—
<i>For organic acid and carbohydrate analysis, such as Rezex™ (Phenomenex).</i>							
<b>Carbo-H<sup>+</sup></b>	—	1 - 8	—	AJ0-4490	—	—	—
<b>Carbo-Ag<sup>+</sup>*</b>	—	Neutral	—	AJ0-4491	—	—	—
<b>Carbo-Pb<sup>+2</sup></b>	—	Neutral	—	AJ0-4492	—	—	—
<b>Carbo-Ca<sup>+2</sup></b>	—	Neutral	—	AJ0-4493	—	—	—

\*For use with saccharide and oligosaccharide columns in Ag<sup>+</sup> form.

<b>GUARD CARTRIDGE HOLDERS</b>	<b>Holder Kit</b>	<b>Holder</b>	<b>Holder</b>	<b>Holder</b>
(one-time purchase only)	KJ0-4282	AJ0-9281	AJ0-8223	AJ0-8277

# Replacement Parts and Accessories

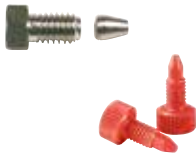
## Analytical Guard Cartridge System (KJ0-4282)

Part No.	Description	Unit
AJ0-4283	PEEK Ferrules	3/pk
AJ0-4285	Stacking Rings	2/pk
AJ0-1389	PEEK Fingertight Fittings	10/pk
AJ0-4284	SecurityGuard Wrenches	2/pk



## SemiPrep Guard Cartridge System (AJ0-9281)

Part No.	Description	Unit
<b>Nuts and Ferrules</b>		
AQ0-3018	10-32 Threaded Male Nut and Ferrules Set for 1/16 inch OD capillary tubing	ea
<b>Column Sealing Plugs</b>		
AQ0-0217	Column Sealing Plug, 10-32 Threadsize	10/pk



### SemiPrep Guard Cartridge System (AJ0-9281)

Part No.	Description	Unit
<b>Sure-Lok™ Fingertight Fittings</b>		
AQ0-1388	PEEK Sure-Lok Male Nut	ea
AQ0-1389	PEEK Sure-Lok Male Nut	10/pk
<b>Sure-Lok™ Couplers</b>		
AQ0-1392	PEEK Sure-Lok Coupler	ea
AQ0-1393	PEEK Sure-Lok Coupler	10/pk
<b>SemiPrep Guard Holder Wrench</b>		
AQ0-8904	Wrench, Open End 1/2 x 9/16 inch	ea



# Replacement Parts and Accessories (continued)

## PREP Guard Cartridge Systems (AJ0-8223/AJ0-8277)

Part No.	Description	Unit
<b>AQ0-8376</b>	PREP Coupler, SS Nuts and Ferrule, 10-32 Threads, 1/16 inch OD x 0.030 inch ID	ea
<b>AQ0-8222</b>	PREP Replacement O-Rings, Kalrez® For 15 x 21.2 mm SG Holder, Size 2-021	2/pk
<b>AQ0-8318</b>	PREP Replacement O-Rings, Kalrez® For 15 x 30 mm SG Holder, Size 2-025	2/pk
<b>AT0-0465</b>	Capillary S.S. Tubing, 0.020 inch ID x 0.062 inch (1/16 inch) OD x 10 cm length	5/pk
<b>AT0-0466</b>	Capillary S.S. Tubing, 0.020 inch ID x 0.062 inch (1/16 inch) OD x 20 cm length	5/pk
<b>AQ0-8903</b>	Wrench, Open End, 1/4 x 5/16 inch	ea



# UHPLC / HPLC / SFC / PREP

## Guard Finder


Having a difficult time finding the best column protection device for your specific UHPLC, HPLC, SFC or Prep column?

- Guard Finder matches over 57,000 column part numbers
- Interactive selection tool finds the appropriate column guard in seconds
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- Search by brand, part number, technique, or column phase



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SecurityGuard is patented by Phenomenex. U.S. Patent No. 6, 162, 362

*CAUTION: This patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.*

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# guarantee

If you are not completely satisfied with the performance of SecurityGuard™, simply contact Phenomenex within 45 days and return SecurityGuard™ for a FULL REFUND.

## SecurityGuard Standard

### Analytical



(KJ0-4282)

## SecurityGuard Prep

### SemiPrep



(AJ0-9281)

### PREP



(AJ0-8223)

(AJ0-8277)



# Instruction Manual

Guard Cartridge Systems for HPLC



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