

THE RIGHT CONSUMABLES  
**FOR YOUR**  
GC APPLICATIONS



# INTRODUCTION AND OVERVIEW

For laboratories looking for a single gas chromatograph that's flexible enough to handle all types of critical samples, the Clarus® platform, 590 and 690 GC systems are the ideal choice; a proven high-performance GC platform that delivers the stringent sensitivity and characterization you need. And they're designed to meet your varied analytical requirements – and the experience levels of the people who run them.

The new Clarus platform is a remarkable step forward, delivering a host of features that enable top performance and increased stability: A wide-range flame ionization detector (FID); a new high-performance capillary injector with decreased reactivity; and autosampler technology that delivers multiple options for liquid injection, headspace, and solid phase microextraction (SPME) on one system.



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# Glass Inlet Liners

For the capillary injector on the Clarus 590 or 690 GC system, the liners are required to be 78.5 mm long.

## Capillary Split/Splitless Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Ultra Deactivated Glass Liner Single Taper for Splitless Injection	2	6.3	78.5	5	N6502030
	Ultra Deactivated Single Taper Splitless Liner	4	6.3	78.5	5	N6502031
	Ultra Deactivated Single Low Pressure Drop Precision Liner with Wool	4	6.3	78.5	5	N6502032
	Ultra Deactivated Straight Splitless Liner with Wool	2	6.3	78.5	5	N6502033
	Ultra Deactivated Split Precision Liner with Wool	4	6.3	78.5	5	N6502034
	Ultra Deactivated Single Taper Inlet Liner with Wool for Split/Splitless Inlets	4	6.3	78.5	5	N6502035
	Ultra Deactivated Straight Inlet Liner with Wool for Split/Splitless Inlets	4	6.3	78.5	5	N6502036
	Ultra Deactivated Straight Inlet Liner, no Wool	1	6.3	78.5	5	N6502037
	Quartz Glass Liner, no Wool, Straight Through with Dimple at the Bottom	4	6.3	78.5	1	N6502038
	Straight Through Glass Liner, no Wool	2	6.3	78.5	1	N6502039
	Glass Liner, Straight Through with Dimple at Bottom, no Wool	4	6.3	78.5	1	N6502040
	Ultra-Deactivated 0.75 mm ID Straight/SPME Inlet Liner	0.75	6.3	78.5	5	N6502044
	Capillary Split/Splitless Deactivated Glass Liners with Deactivated Wool	4	6.3	78.5	5	N6502041
	Capillary Split/Splitless Deactivated Glass Liners with Deactivated Wool and Tapered End	4	6.3	78.5	5	N6502042
	Capillary Split/Splitless Deactivated Glass Liners with Deactivated Wool. Quartz Wool is used to Fully Vaporize the Sample	4	6.3	78.5	5	N6502043

# Glass Inlet Liners

## Programmed Temperature Split/Splitless (PSS) Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Quartz Liner for Splitless Operation (Ships with Instrument) – Excellent Liner for Low Volume Analyses	1	4	86.2	1	<b>N6121006</b>
	Siltek Deactivated Glass PSS Liner – Used for Low Volume Trace Sample Analyses	1	4	86.2	5	<b>N6502000</b>
	Quartz Liner for Split Operation (Ships with Instrument) – Approved PerkinElmer Standard Injector Liner	2	4	86.2	1	<b>N6121004</b>
	Siltek Deactivated Glass Liner for Split Operation (with Wool) – Maximum Inertness and Packed with Wool Gives Optimum Sample Dispersion. Surface provides inertness over wide sample pH range. Wool can be adsorptive if fibers are broken	2	4	86.2	5	<b>N6502001</b>
	Siltek Deactivated Glass Liner for Split Operation – Max Inertness Gives Optimum Sample Dispersion. Deactivated surface provides minimal bleed and inertness over a wide sample pH range	2	4	86.2	5	<b>N6502002</b>
	Zero Dilution Outer Liner – Use in conjunction with <b>N1011446</b>	2.8	4	83	1	<b>N1011447</b>
	Zero Dilution Inner Liner – Use in conjunction with <b>N1011447</b>		2	73	1	<b>N1011446</b>
	On-Column Glass Liner	2.4	4	86.2	1	<b>N6101539</b>
	Liner/Hour Glass for POC Injector	2.4	4	19.05	1	<b>N6101703</b>
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	1	<b>N6121008</b>
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	5	<b>N6121009</b>
	PSS Deactivated Glass Liners with Deactivated Wool. Narrow Bore and Quartz Wool Increase Volatilization and Reproducibility	2	4	86.2	5	<b>N9306232</b>
	PSS Splitless Deactivated Glass Liners	1.25	4	86.2	5	<b>N9306237</b>

## Packed Column Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Drilled Uniliner (hole on top) – Excellent liner for high sample recovery and linearity, recommended for aqueous injections. Good for PPC equipped GCs	4	6.2	92.1	5	<b>N6121022</b>
	Drilled Uniliner (hole on bottom) – Recommended for analysis in which compounds of interest could be affected by a tailing solvent peak. Good for PPC equipped GCs	4	6.2	92.1	5	<b>N6502013</b>
	Gooseneck Drilled Uniliner (hole on top) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	<b>N6502014</b>
	Gooseneck Drilled Uniliner (hole on bottom) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	<b>N6502015</b>
	Open Top Uniliner (with Wool) – Packed with fused silica wool, highly recommended for high molecular weight active samples. The fused silica wool traps dirt and sample residue	4	6.2	92.1	5	<b>N6502016</b>
	Cyclo Uniliner – Cylindrical design for high molecular weight samples provides an excellent vaporization surface. Spiral traps dirt reducing further residue sample interaction	4	6.2	92.1	5	<b>N6502017</b>
	Wide-Bore Column Glass Liner	6	4	92.1	1	<b>N6101375</b>
	Wide-Bore Column On/Off Quartz Liner	6	4	92.1	1	<b>N6121003</b>

# O-Rings for Capillary Injector Liners

Description	Part No.
O-Ring Viton® for Glass Liner (Pkg. 1). Maximum Injector Temperature 250 °C, recommended for use with Mass Spec.	09926068
O-Ring Viton® for Glass Liner (Pkg. 5). Maximum Injector Temperature 250 °C, recommended for use with Mass Spec.	L1003161
O-Ring, KALREZ® for Glass Liner (Pkg. 1). Maximum Injector Temperature 450 °C	09200725

## Ferrules

### SilTite Metal Ferrules

Provide a continuous leak-free connection and are perfect for connecting your column to a GC/MS.

The SilTite™ metal ferrule and nut are manufactured from the same material and therefore expand and contract at the same rate, eliminating the need to re-tighten – even after temperature cycling. The base of the SilTite™ ferrule forms a perfect seal with the MS interface, ensuring a leak-free connection. SilTite™ metal ferrules have a temperature limit well above the temperature capacity of the injector, MS interface or GC oven.



Description	Hole Size (mm)	Part No.
SilTite Ferrules Starter Kit*	0.4	N9306090
SilTite Ferrules Starter Kit*	0.5	N9306091
SilTite Ferrules Starter Kit*	0.8	N9306092
SilTite Ferrules (Pkg. 10)	0.4	N9306093
SilTite Ferrules (Pkg. 10)	0.5	N9306094
SilTite Ferrules (Pkg. 10)	0.8	N9306095
SilTite Nuts (Pkg. 5)	N/A	N9306096

\* Kits include 2 nuts and 10 ferrules

### Capillary Column Ferrules

#### Graphite

Ferrule of choice for high-temperature applications up to 450 °C. Graphite seals easily and does not stick to glass columns.

#### Graphite/Vespel®

15% graphite/85% polyimide ferrule recommended for use with GC/MS systems. Temperature limit is 350 °C.

#### Vespel®

Not reusable. Not recommended for fused silica capillary columns. Use these ferrules on 1/16 in. metal tubing and glass-lined receivers. Temperature limit is 350 °C.

### Ferrules For Use With detectors\*\*

Size	Column ID/Ferrule ID (mm)	Graphite Part No.	Graphite/Vespel Part No.
1/16 in.	0.18 – 0.25/0.4		09920104
1/16 in.	0.18 – 0.32/0.5	09903700	09920105
1/16 in.	0.18 – 0.53/0.8	09920141	09920107
1/8 in.	0.18 – 0.53/1.0	09903394	
1/16 in.	0.18 – 0.32/0.5 (Two hole ferrule)	N9306001	N9306000
1/8 in.	0.18 – 0.32/0.5 (Two hole ferrule)	09903395	

\*\* Not suitable for Clarus 590/690 capillary injector

### Short Ferrules For Use With The Capillary Injector

Size	Column ID/Ferrule ID (mm)	Graphite Part No.	Graphite/Vespel Part No.
1/16 in. short	0.18 – 0.32/0.4	09200785	09200685
1/16 in. short	0.18 – 0.32/0.5***	09200785	09200686
1/16 in. short	0.18 – 0.53/0.8	09200787	09200687
1/16 in. short	0.18 – 0.32/0.5 (Two hole ferrule)	–	09200788

\*\*\* Same graphite Part No. for 0.4 and 0.5 mm opening

# Autosampler Syringes

Syringes from PerkinElmer are individually inspected for accuracy and performance.

Recommended autosampler syringes are available in 0.5, 5 and 50 µL capacities. For routine analyses, the metal plunger in barrel with PTFE-tipped seal is the standard syringe as shipped with each Clarus GC instrument. Alternative syringes to use are the metal plunger in barrel or the 0.53 mm on-column injection.

Description	Part No.
50 µL Syringe, Metal Plunger 0.63 mm OD Needle	<b>N6101760</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle (ships with instrument)	<b>N6101390</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (Pkg. 5 syringes)	<b>N6103240</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (Pkg. 10 syringes)	<b>N6103241</b>
5 µL Syringe, Metal Plunger 0.63 mm OD Needle	<b>N6101251</b>
5 µL On-column Syringe Metal Plunger 0.47 mm OD Needle	<b>N6101380</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	<b>N6101252</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 5 syringes)	<b>N6103242</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 10 syringes)	<b>N6103243</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	<b>N6101253</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	<b>N6101252</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 5 syringes)	<b>N6103242</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 10 syringes)	<b>N6103243</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	<b>N6101253</b>

# Injector Septa

## Features and Benefits

- PerkinElmer Green Injection septum, extremely low bleed over a wide range of inlet temperatures – 100 °C to 350 °C. Easier needle penetration and high puncture tolerance make this septum ideal for autosamplers. This septum is already conditioned and ready to use
- BTO™ (Bleed Temperature Optimized) injector septa, 11 mm diameter. Maximum recommended operating temperature 300 °C
- PTFE/Silicone injector septa, 11 mm diameter

Description	Pkg.	Part No.
PerkinElmer Green Injection Septum	50	<b>N6621028</b>
Low Bleed Injector Septa	25	<b>N9303343</b>
PTFE/Silicone Injector Septa	50	<b>00090652</b>
Green Injection Port Septa	10	<b>N9306218</b>
Green Injection Port Septa	50	<b>N9306219</b>
Orange Injection Port Septa	50	<b>N9302972</b>

## Green

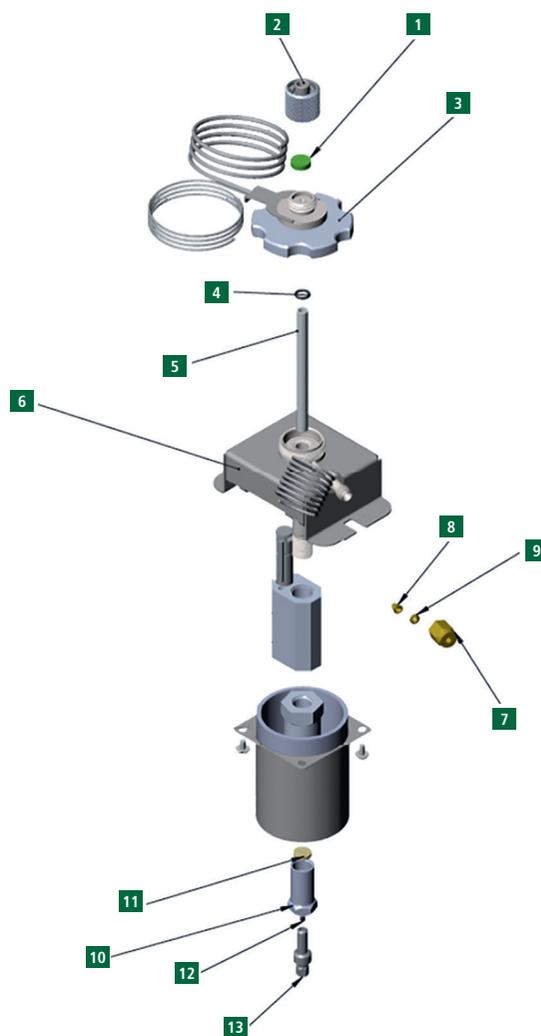
Septa rated to 400 °C. The advanced green septum was created to combine significantly longer injection life, low bleed and low injection port adhesion. The result is a general use green septum made of uniquely formulated silicone rubber you can use for all your daily analyses. Packaged in a pre-cleaned glass screw top jar for high purity.

## Orange

Septa rated to 400 °C. Uniquely formulated silicone rubber septa BTO® is bleed and temperature optimized for today's most demanding GC and GC/MS applications. Septa BTO® is formulated to extend low-bleed and outstanding mechanical properties of premium GC septa. It retains remarkable softness at high temperatures and has been optimized to reduce injection port adhesion. Packaged in a pre-cleaned glass screw top jar for high purity.

# 590/690 Capillary Injector Parts

Product	Description	Part No.
	Septum Cap	
1	PerkinElmer Green Injection Septum (Pkg. 50)	N6621028
2	Injector Top Nut	N6550223
3	Injector Head	N6550220
4	O-Ring, Viton® for Glass Liner (Pkg. 1) Maximum Injector Temperature 250 °C, Recommended for use with Mass Spec.	09926068
	O-Ring, KALREZ® for Glass Liner (Pkg. 1) Maximum Injector Temperature 450 °C	09200725
5	Ultra-deactivated Straight Inlet Liner With Wool, 4.0 mm ID, for Split/Splitless Inlets, 5 pack (ships with instrument) See page 3 for a full listing of liners	N6502036
	Ultra Deactivated Straight Splitless Liner With Wool	N6502033
	Ultra-deactivated Split Precision Liner With Wool, 4.0 mm ID, 5 pack	N6502034
	Ultra-deactivated Straight Inlet Liner No Wool, 1.0 mm ID, 5 pack	N6502037
	Straight Through Glass Liner No Wool, 2.0 mm ID	N6502039
6	Injector Body	N6550221
7	Brass Nut	09903128
8	Front Ferrule – 1/8 in. Brass	09903129
9	Back Ferrule – 1/8 in. Brass	09903130
10	Gold Seal Nut	N6552080
11	Gold Seal	N6551043
12	1/16 in. Short Graphite/Vespel Ferrule (Pkg. 10) For column ID 0.18 – 0.32 mm/0.4 mm See page 5 for a full listing of short ferrules	09200685
Not shown	Trap Installation Kit (same part for both split and splitless injection)	N6550140
Not shown	Trap Replacement Cartridge	N6550142
Not shown	Split Vent Trap Connecting Tube – 690, A Position	N6552091
Not shown	Split Vent Trap Connecting Tube – 690, B Position	N6552092
Not shown	Split Vent Trap Connecting Tube – 590, A Position	N6552093
Not shown	Split Vent Trap Connecting Tube – 590, B Position	N6552094
13	Capillary Column Nut	N6552084



## GC/MS 590/690 Capillary Injector Consumable Kit

Description	Part No.
GC/MS Capillary Injector Starter Kit for Clarus 690, 590	N6550448
Contents	Pkg. Qty. Part No.
5.0 µL Autosampler Syringe	1 N6101390
Vial Locator (Dongle)	2 N6101182
Viton O-Rings (250 °C)	10 1 09926068
Kelrez O-Rings (Maximum Injector temperature 450 °C)	1 2 09200725
Ultra Deactivated Split/Splitless Liner, 4 mm, with Wool	5 1 09200624
Graphite/Vespel Ferrules, for 0.25 mm Columns	10 1 09200685
PerkinElmer Green Septa (50 pieces)	1 N6621028
Marathon Filament	1 N6470012
Aluminum Oxide Powder (3 oz.)	1 04190197

## Split/Splitless Injector Add-On Kits

All capillary add on kits need the charcoal trap kit (Part No. **N6550140**) and the appropriate vent trap connecting tube.

Configuration	Part No.
Split Vent Trap Connecting Tube – 690, A Position	<b>N6552091</b>
Split Vent Trap Connecting Tube – 690, B Position	<b>N6552092</b>
Split Vent Trap Connecting Tube – 590, A Position	<b>N6552093</b>
Split Vent Trap Connecting Tube – 590, B Position	<b>N6552094</b>

### Capillary Injector with PPC

Kit includes split/splitless injector with programmable pneumatic control for carrier gas, split vent, heater, sensor, and heater block. If not, a PPC upgrade kit (Part No. **N6120146**) is required and in addition, modules may also be required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	<b>N6550138</b>
240 V	<b>N6550139</b>

### Capillary Injector for Manual Pneumatics (590 only)

Kit includes split/splitless injector in module with heater and sensor, 0 – 60 psi pressure regulator, and transducer for pressure readout. For manual gas control.

Voltage	Part No.
120 V Clarus	<b>N6550012</b>
230 V Clarus	<b>N6550013</b>

### Dual Capillary Column Adapter Kit

Kit includes all necessary hardware to install two capillary columns to a capillary injector. Note: kit does not include appropriate 1/8 in. two hole ferrule (Part No. **09200488**). This kit is not suitable for applications using two 0.53 mm ID columns.

Description	Part No.
Dual capillary column adapter kit	<b>N6550014</b>

### Split/Splitless Injector Starter Kit

Includes: 2 mm ID quartz liner, 4 mm ID quartz liner, silicone O-Rings, green septa (50), 0.4 mm, 0.5 mm and 0.8 mm GV ferrules, gold seal, gold seal nut, capillary injector nut and wafer scribes.

Description	Part No.
Split/Splitless Injector Starter Kit for Manual Gas Control	<b>N6550101</b>

## Packed Column Injector Add-On Kits

### Packed Column Injector Kit with Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller, and column head pressure gauge for installation into the AutoSystem.

Voltage	Part No.
120 V*	<b>N6120007</b>
240 V*	<b>N6120023</b>

### Packed Column Injector Kit with PPC

The kit includes complete injector assembly with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	<b>N6120136</b>
240 V*	<b>N6120137</b>

### Packed Column Injector Kit with Screen Readout and Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller and column head pressure gauge, and transducer for screen readout of column carrier flow.

Voltage	Part No.
120 V* Clarus	<b>N6520010</b>
230 V* Clarus	<b>N6520011</b>

### Packed Column Injector Kit

The kit includes complete injector, heater, sensor and heater block. (Does not include pneumatics.)

Voltage	Part No.
120 V*	<b>N6120071</b>
240 V*	<b>N6120072</b>

### Packed Column Injector Starter Kit

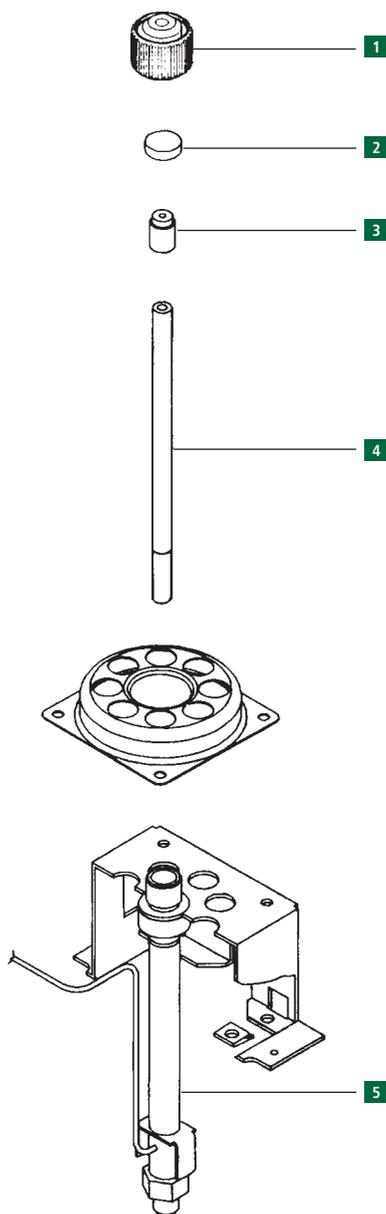
Includes glass liner, needle guide, green septa (50), untreated quartz wool, and packing rod.

Description	Part No.
Packed Column Injector Starter Kit	<b>N6120100</b>

\*Service installation suggested

## Packed Injector Replacement Parts

Description	Part No.
<b>1</b> Septum Cap	<b>N6100153</b>
<b>2</b> PerkinElmer Green Injection Septum (Pkg. 50)	<b>N6621028</b>
<b>3</b> Needle Guide	<b>N6101050</b>
<b>4</b> Glass Liner	<b>N6101048</b>
Quartz Liner	<b>N6121000</b>
<b>5</b> Packed Injector Assembly	<b>N6100048</b>



## Wide-Bore Adapter Kit

### 0.53 Capillary Column Adapter Kit

The Wide-Bore Adapter Kit allows conversion of the packed inlet for 0.53 mm capillary column operation. The kit includes 0 – 20 mL flow control element, wide-bore adapter with 1/16 in. fitting, wide-bore glass liner, and column support hanger. Can be used in both on-column and off-column modes of operation.

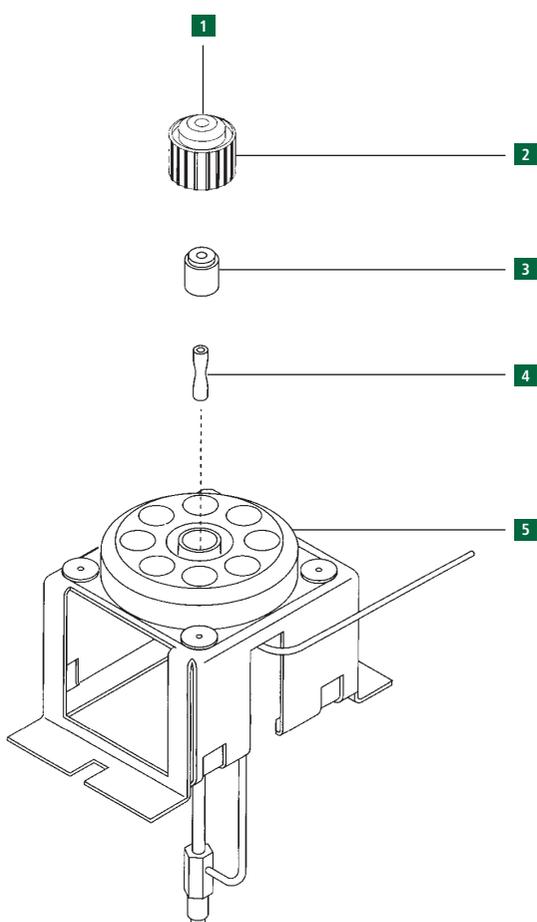
Description	Part No.
0.53 Capillary Column Adapter Kit	<b>N6120001</b>

## GC/MS PSS Injector Consumable Kit

Description	Part No.		
GC/MS PSS Injector Starter Kit	<b>N6100447</b>		
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	<b>N6101390</b>
Vial Locator (dongle)		2	<b>N6101182</b>
PSS Injector Viton O-Rings (250 °C)	10	1	<b>09926067</b>
PSS Injector Kelrez O-Rings (350 °C)	10	1	<b>09921004</b>
PSS Split/Splitless Liner, 2 mm, No Wool		2	<b>N6121004</b>
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	<b>09920104</b>
PerkinElmer Green Septa (50 pieces)		1	<b>N6621028</b>
Marathon Filament		1	<b>N6470012</b>
Aluminum Oxide Powder (3 oz.)		1	<b>04190197</b>

## POC Replacement Parts

Description	Part No.
<b>1</b> Septum Cap	<b>N6100153</b>
<b>2</b> PerkinElmer Green Injection Septum (Pkg. 50)	<b>N6621028</b>
<b>3</b> Needle Guide	<b>N6101702</b>
<b>4</b> Liner/Hour Glass	<b>N6101703</b>
Body Assembly	<b>N6100256</b>
<b>5</b> Packed Injector Assembly	<b>N6100048</b>



## Programmed-Temperature On-Column Injector System

Programmed-Temperature On-Column (POC) Inlet is designed to be used with fused-silica capillary columns. The sample is injected onto the column while the inlet is cool. After the injection, the inlet begins to heat. This delay in heating avoids the flash vaporization associated with a normal injection. This explosive vaporization can cause thermal breakdown and/or discrimination of certain analytes, which can be avoided by using the POC.

The POC Injector is best used to achieve recovery of compounds of greater than C<sub>60</sub> (e.g., polywaxes). The POC utilizes flow control, producing the best recovery out to C<sub>100</sub> or greater.

### POC Injector with Manual Flow Controller and Head Pressure Gauge

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	<b>N6120076</b>
240 V*	<b>N6120077</b>

### POC Injector with Manual Flow Controller and Head Pressure Gauge with Flow Readout on Screen

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	<b>N6120082</b>
240 V*	<b>N6120083</b>

### POC Injector with PPC Add-On Kit

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The Clarus GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V*	<b>N6120142</b>
240 V*	<b>N6120143</b>

### POC Injector Starter Kit

Includes: needle guides (5), universal connectors (5), 0.53 mm ID deactivated fused silica (5 m), 1/16 in. stainless steel nuts (5), 0.8 mm graphite ferrules (10), green septa (50), and wafer scribes (10).

Voltage	Part No.
POC Injector Starter Kit	<b>N6120098</b>

\* Service installation suggested

# Programmed-Temperature Split/Splitless Injector System

## PSS Injector Add-On Kits with Manual Pneumatics

The programmed-temperature split/splitless (PSS) inlet allows accurate sample delivery to a capillary column. The PSS allows the analysis of thermally labile compounds, while eliminating the discrimination of high-boiling compounds. One of the major advantages of the PSS is that any nonvolatile material will remain in the inlet liner and not on the front of the column.

PSS with pneumatics and pressure readout on screen.  
Kit includes all necessary hardware to install injector into GC.

Voltage	Part No.
120 V* Clarus	N6520014
230 V* Clarus	N6520015

## PSS Injector with PPC

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (N6120146) is required.

Voltage	Part No.
120 V*	N6120140
240 V*	N6120141

## PSS Injector Starter Kit

Includes: universal connectors (5), 0.53 mm ID deactivated fused-silica (5 m), 2 mm ID quartz liner, 1 mm ID quartz liner, glass hourglass liner, 1/16 in. stainless steel nuts (5), 0.5 mm ID graphite ferrules (10), 0.8 mm ID graphite ferrules (10), Viton® O-Rings (6), graphite O-Rings (5), untreated quartz wool, wafer scribes (10), and green septa (50).

Voltage	Part No.
PSS Injector Starter Kit	N6120102

## Zero Dilution Liners Recommended for Headspace

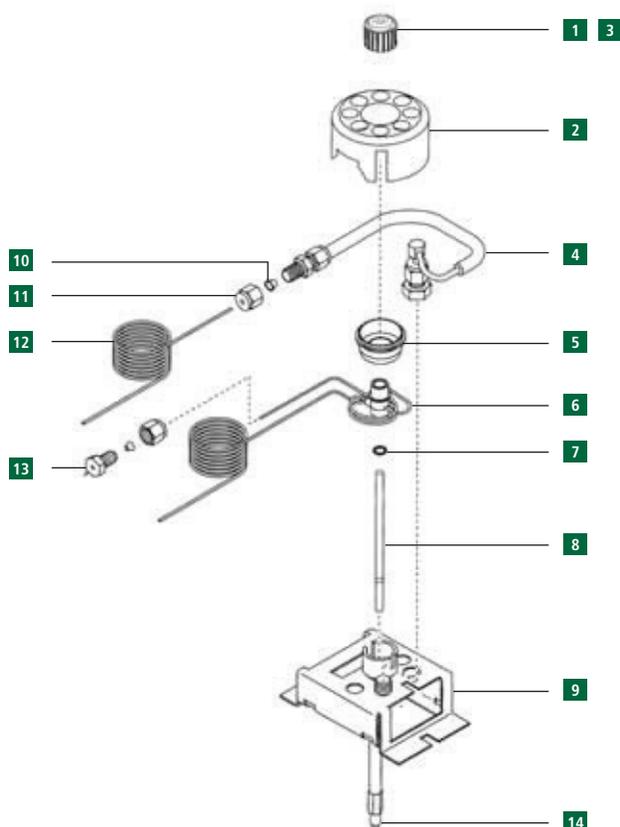
Used together as set.

Voltage	Part No.
Inner Liner	N1011446
Outer Liner	N1011447

\* Service installation suggested

# PSS Replacement Parts

Description	Part No.
<b>1</b> Septum Cap	N6100153
<b>2</b> Injector Cover	N6101482
<b>3</b> PerkinElmer Green Injection Septum (Pkg. 50)	N6621028
<b>4</b> Trap, Charcoal – non PPC version PPC version (not shown)	N6100275
<b>5</b> Nut	N6101705
<b>6</b> Septum Purge	N6100260
<b>7</b> O-Ring Viton (Pkg. 10) max temp 250 °C, recommended for use with mass spec. Shipped with instrument	N6101747
<b>7</b> O-Ring KALREZ® (Pkg. 1) max temp. 450 °C	09921004
<b>8</b> O-Ring Graphite (Pkg. 5) max temp. 450 °C	N6101751
<b>8</b> Quartz Liner, 2 mm Split Mode Shipped with instrument	N6121004
<b>8</b> Quartz Liner, 1 mm Splitless Mode	N6121006
<b>8</b> On-column liner	N6101539
<b>9</b> Body Assembly	N6100261
<b>10</b> Ferrule 1/8 in. x 1/16 in. (Pkg. 10)	09920301
<b>11</b> Nut 1/8 in.	09903128
<b>12</b> Split Vent Line	N6100159
<b>13</b> Purge Restrictor	N6101034
<b>14</b> Nut	09903392



# NEW Wide Range FID Add-On Kits

## Auto-Ignite Wide Range FID Add-On Kit (with PPC)

Kit includes: detector assembly with heater and sensor, heater block, igniter, programmable pneumatics, amplifier and controls for detector combustion gases. GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120167
240 V	N6120168

## Auto-Ignite Wide Range FID Add-On Kit (Manual Pneumatics), 590 only

Kit includes: detector assembly with heater and sensor, heater block, igniter, hydrogen pressure regulator, amplifier and needle valve.

Voltage	Part No.
120 V	N6550118
230 V	N6550119

## Wide Range FID Amplifier

Description	Part No.
Wide Range FID Amplifier	N6559234

# Detector Series Operation Kit

## TCD/FID Series Operation Kit

Used to direct sample effluent from the TCD to the FID.

Description	Part No.
TCD/FID Series Operation Kit	N6120006

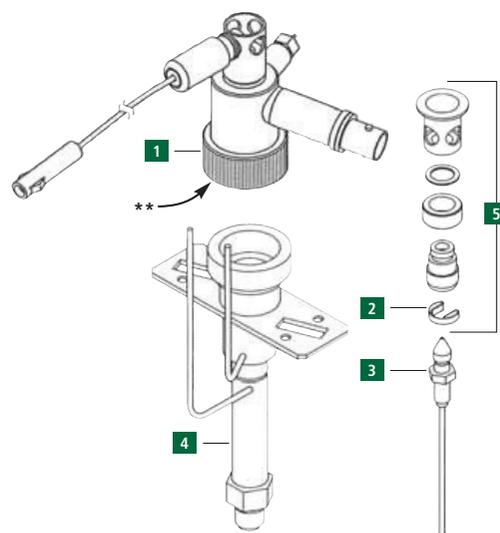
## PID/FID Series Operation Kit

Used to direct sample effluent from the PID to the FID.

Description	Part No.
PID/FID Series Operation Kit	N6120059

## Auto-Ignite Wide Range FID Replacement Parts

Description	Part No.
<b>1</b> Collector Head Assembly Silicone Rubber O-Ring** (not shown)	N6550081 09902143
<b>2</b> FID Jet Contact/Spring (included in N6550072)	N6001204
<b>3</b> Jet Assembly (0.28 mm jet, fitted as standard) Jet Assembly (0.71 mm jet)	N6550080 N6550083
<b>4</b> FID Body	N6550082
<b>5</b> Nozzle Assembly	N6550072



# Wide Range FID Miscellaneous Accessories

Description	Part No.
Auto-Ignite Nozzle Replacement Tool for removing nozzle from auto-ignite FID body	N6103188
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161
Capillary Column Adapter for capillary column use with the FID 1/8 to 1/16 in. detector adapter	N6120020
Ceramic Column Cutter	N9301376
Cotton Applicators	N9301272
Detector Cover (Brown Color)	N6103225
Detector Cover (White Color)	N6103151
Eraser Brush-Pencil	09923078
Jet Assembly (0.28 mm jet, fitted as standard)	N6550080
Jet Assembly (0.71 mm jet)	N6550083
Jet Replacement Tool 1/4 in. nut driver for removing jet from auto-ignite FID body	N6101297
Replacement Stainless Steel Glow Plug for Auto-ignite FID	N6103089
1/4 in. Packed Column Adapter for use with 1/4 in. packed columns. 1/8 to 1/4 in. adapter fits both injector and detector ends	00080100

## Catalytic Reactor Accessory

### Auto-Ignite Wide Range FID with PPC Add-On Kit

The catalytic reactor converts CO and CO<sub>2</sub> to methane conveniently and efficiently. The lower detection limit is extended to well below 0.1 ppm.

The catalytic reactor consists of a special catalytic reactor base which replaces the FID base. The reactor body contains a quantity of catalyst held in place by a quartz wool plug.

Kits include base assembly, reactor tube, and instructions.

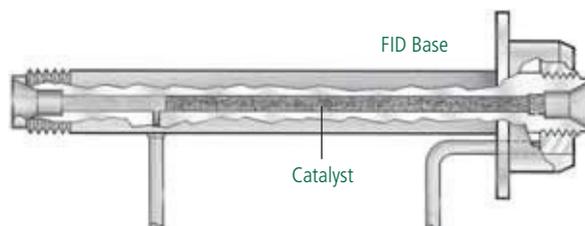
### External Igniter Wide Range FID Catalytic Reactor Accessory\*

Description	Part No.
External Igniter FID Catalytic Reactor Accessory	N6550180

\* Same part for Auto-Ignite catalytic reactor accessory

### Catalytic Reactor Replacement Parts

Description	Part No.
Catalyst	N9302698
Jet Assembly (specific to methanizer/catalytic reactor)	N6100194
Quartz Wool (available in the US only)	N6102354



## Miscellaneous Accessories

### Hydrogen Regulator Replacement Kit (Manual Pneumatics)

Description	Part No.
Hydrogen Regulator Replacement Kit	N6100289

### Hydrogen/Air Replacement Needle Valve (Manual Pneumatics)

Description	Part No.
Hydrogen/Air Replacement Needle Valve	N6101412

### FID Flow Measurement Adapter

Description	Part No.
FID Flow Measurement Adapter	N6101345

# FPD Add-On Kits

The FPD is a highly sensitive and selective detector for both sulfur and phosphorus compounds. It is especially suitable for environmental monitoring of H<sub>2</sub>S and sulfur gases in general and for organophosphorus compounds present at trace levels in pesticide analysis. Alkyl tin compounds can also be analyzed by changing the filter assembly. The sulfur filter is shipped standard.

The FPD mounts in either the front or rear detector position. This allows many detector combinations, such as FPD/FPD, FPD/TCDD, and FPD/ELCD.

The AutoSystem also includes a linearizer function for the sulfur mode and convenient control of the photomultiplier tube from the keyboard.

The FPD is capillary-column compatible. The detector will accept columns of 0.530 mm ID or less. The standard jet shipped with the FPD does not have a glass-lined tail pipe. If an all-glass system is required and glass packed columns will be used, then a glass-lined tail pipe should be ordered (N6100264). As a reminder, use of packed 1/4 in. columns requires a 1/8 to 1/4 in. adapter.

## Filters

Description	Part No.
Phosphorus Lens (Yellow)	N6000981
Sulfur Lens* (Blue)	N6000637
Tin Lens (Orange)	L4135472

\* Shipped standard

## FPD Add-On Kit (Manual Pneumatics)

Kit includes detector, heater, sensor, heater block, hydrogen needle valve, air pressure regulator, and sulfur photomultiplier filter. Requires but does not include FPD amplifier (N6120095). Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed.

Voltage	Part No.
120 V Clarus	N6520028
230 V Clarus	N6520029

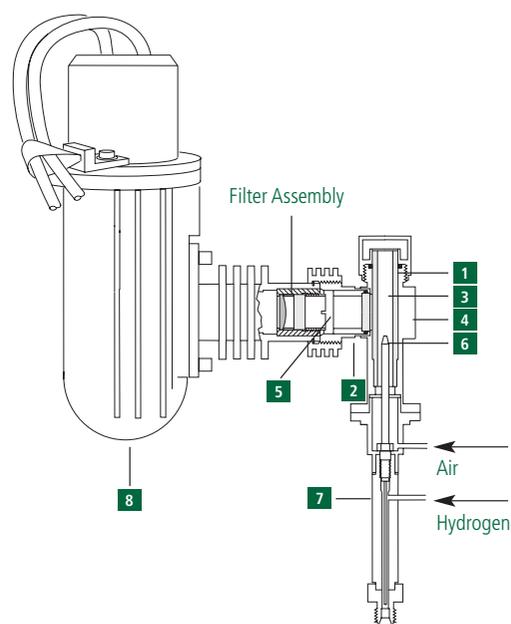
## FPD Amplifier

Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed.

Description	Part No.
FPD Amplifier	N6120095

## FPD Replacement Parts for AutoSystem Series GCs

Description	Part No.
1 O-Ring	09902247
2 Seal Assembly and Window (heat shield)	N9300096
3 Liner (window)	N6003057
4 FPD Body (upper)	N6100243
5 Window Holder	N6003066
6 FPD Jet Glass-lined Jet Tailpipe (for all-glass system)	N6100245 N6100264
7 FPD Body (lower)	N6100244
8 Photomultiplier Tube	09972321



## FPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, programmable pneumatic control for detector combustion gases, and sulfur photomultiplier filter. Requires, but does not include, FPD amplifier (N6120095). GC must be PPC ready. If not, a PPC upgrade kit (N6120146) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120128
230 V	N6120129

## Packed Column Adapter

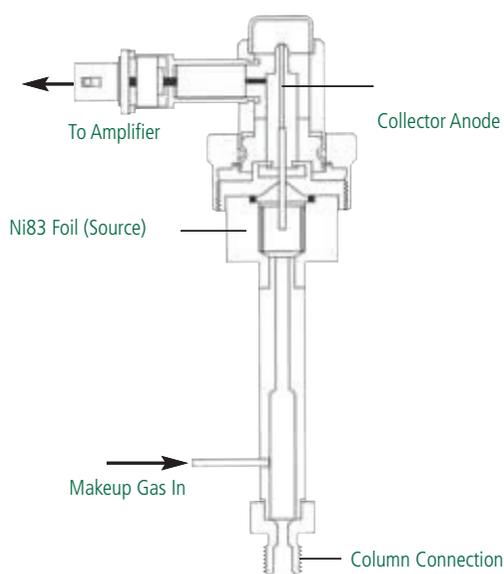
1/8 to 1/4 in. adapter for use with 1/4 in. packed columns.

Description	Part No.
Adapter (set of 2)	00080100

## ECD Add-On Kits

The ECD is a versatile, nondestructive detector which responds strongly to halogen-containing compounds as well as to certain other electron-capturing substances. The ECD's high sensitivity and selectivity make it an ideal choice for pesticide-residue analysis and for detection of halogen-derivatized compounds.

The ECD has an independent temperature range of 100-450 °C. The detector contains thermal protection that prevents heating the Ni63 source to temperatures beyond safe operating limits. Two ECDs can be installed and operated simultaneously on the Clarus GCs. Nitrogen or argon/methane is the required detector operating gas. The base of the detector terminates in a 1/8 in. fitting.



### ECD Add-On Kit (Manual Pneumatics)

Kit includes all parts necessary to install an ECD on the AutoSystem Series or Clarus GCs. Includes: detector, heater, sensor, heater block, 1/16 in. makeup gas line, makeup gas needle valve, and vent tube assembly. Requires, but does not include, ECD amplifier (N6120014). Installation by PerkinElmer Service is recommended.

Voltage	Part No.
120 V Clarus	N6520020
230 V Clarus	N6520021

### ECD Amplifier

Required for use with ECD detector with add-on kit.

Description	Part No.
ECD Amplifier	N6120014

### ECD Add-On Kit (PPC Pneumatics)

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, ECD amplifier (N6120014). The Clarus GCs must be PPC ready. If not, a PPC upgrade kit (N6120146) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120122
230 V	N6120123

### Vent Tube Assembly

Flexible tube to safely vent toxic sample effluent.

Description	Part No.
Vent Tube Assembly	N6100161

## Column Adapters

### Column Adapter/Receiver

Adapter converts 1/8 in. fitting to 1/16 in. for use with capillary columns. **Note:** Glass-lined tubing reduces background from polyimide coating in high-temperature applications.

Description	Part No.
Capillary Column Adapter/Receiver	N6000968

### PID/ECD Series Operation Kit

Kit for directing effluent from PID to ECD.

Description	Part No.
PID/ECD Series Operation Kit	N6120059

### 1/4 in. Packed Column Adapter

For use with 1/4 in. packed columns. 1/8 to 1/4 in. adapters fit both injector and detector ends. (Pkg. 2).

Description	Part No.
1/4 in. Packed Column Adapter	00080100

## ECD Wipe Test Kit

U.S. Federal law requires that all ECDs be wipe-tested periodically as described in the instrument operator's manual. In the U.S., possession and use of ECD is regulated by N.R.C. and/or state regulatory agencies. Licensing by regulatory agencies is required. Outside of the U.S., check with governing bodies for licensing and regulations covering possession and use. This kit contains everything necessary to do a complete wipe test. For use on any model GC ECD.

Description	Part No.
ECD Wipe Test Kit	00091667

## NPD Add-On Kits

### NPD Add-On Kit (Manual Pneumatics)

The NPD can be used for the analysis of organic compounds containing nitrogen or phosphorus down to the picogram level. The NPD has become the detector of choice for low-level drug and pesticide applications because of its sensitivity and selectivity.

Kit includes: detector, heater, sensor, heater block, air needle valve, and hydrogen pressure regulator with snubber and two beads. Requires, but does not include, amplifier. Firmware must be PerkinElmer Service installed.

Voltage	Part No.
120 V Clarus	N6520024
230 V Clarus	N6520025

### NPD Amplifier

Required for use with NPD Add-On Kit.

Description	Part No.
NPD Amplifier	N6120094

### NPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for detector combustion gases and two beads. Requires, but does not include, amplifier (N6120094). The Clarus GC must be PPC ready. If not, the PPC upgrade kit (N6120146) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120126
240 V	N6120127

## Column Adapter

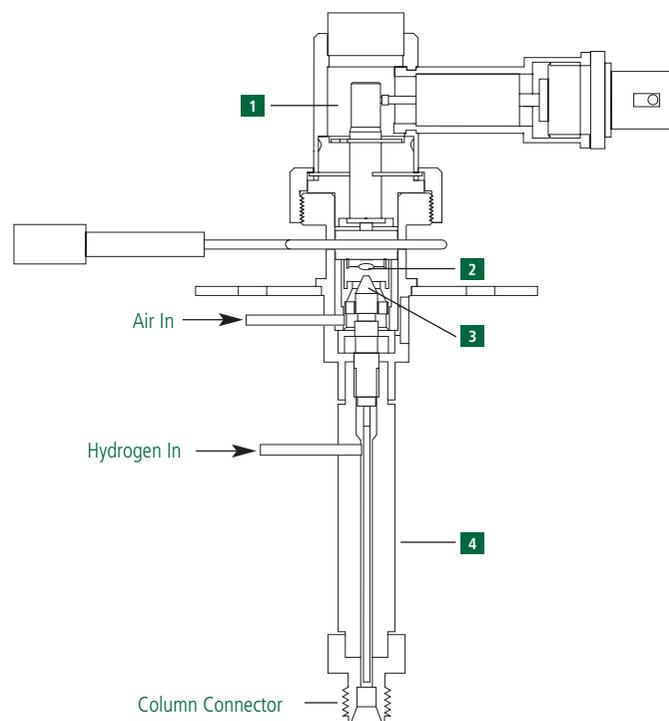
### 1/4 in. Packed Column Adapter

1/8 to 1/4 in. detector receiver adapter for use with 1/4 in. packed columns. Two included (injector/detector).

Description	Part No.
1/4 in. Packed Column Adapter	00080100

## NPD Replacement Parts

	Description	Part No.
1	Collector Head	N6100253
2	Bead Assembly (Pkg. 5) Single Pkg.	N6120093 N6120092
3	Jet Assembly	N6100038
4	NPD Body	N6100228



# PID Add-On Kits

## PID Add-On Kit (Manual Pneumatics)

The PID utilizes a high-intensity ultraviolet light source to ionize the sample components eluting from the column in order to generate the chromatographic signal. The PID has a maximum recommended operating temperature of 250 °C. The lamp can be replaced with a blanking disk to allow bake-out operation (up to 350 °C). Kit includes: detector, heater, sensor, makeup gas needle valve, and all necessary mounting hardware for installation on a GC. Requires, but does not include, amplifier (**N6120061**) and lamp power supply (**N6120062**). Firmware revision 1.2 or greater is required. Firmware must be PerkinElmer Service installed.

Voltage	Part No.
120 V Clarus	<b>N6520026</b>
230 V Clarus	<b>N6520027</b>

## PID Amplifier

Required for use with PID Add-On Kit.

Description	Part No.
PID Amplifier	<b>N6120061</b>

## PID Lamp Power Supply

Required for use with PID Add-On Kit.

Description	Part No.
PID Lamp Power Supply	<b>N6120062</b>

## PID with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, amplifier (**N6120061**) and power supply (**N6120062**). The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	<b>N6120130</b>
230 V	<b>N6120131</b>

# Detector Series Operation Kits

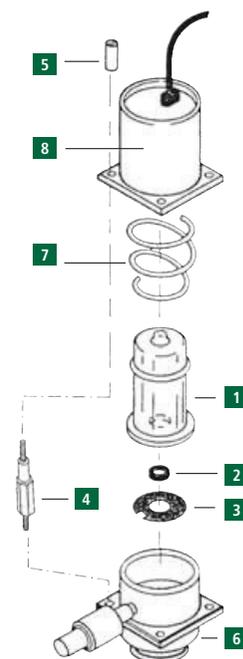
Description	Part No.
PID/FID, PID/ECD Series kit for directing effluent from a PID to an FID or an ECD	<b>N6120059</b>

# Miscellaneous Accessories

Description	Part No.
Bakeout Disk	<b>03302989</b>
Lamp Cleaning Compound	<b>03302775</b>
1/4 in. Detector Receiver	<b>03300866</b>
1/8 in. Detector Receiver	<b>03300865</b>

# PID Replacement Parts

Description	Part No.
<b>1</b> PID Lamp (10.2eV), For most applications including aromatics, alkenes, and aliphatics higher than C4. Shipped standard with PID	<b>03303599</b>
<b>1</b> PID Lamp (9.5eV), Improved selectivity for multiple ring aromatic, sulfur compounds	<b>03303598</b>
<b>2</b> PID Lamp Window Seal	<b>03302778</b>
<b>3</b> PID Lower Lamp Seal	<b>03302777</b>
<b>4</b> Shoulder Pin	<b>03302976</b>
<b>5</b> Cap Nut	<b>03303773</b>
<b>6</b> Base Assembly	<b>03302979</b>
<b>7</b> Spring	<b>03302973</b>
<b>8</b> Cap with Harness	<b>N6101696</b>



## TCD Add-On Kits

### Features and Benefits

- Lower internal volume and smaller overall size
- No makeup gas required with 0.53 mm and 0.32 mm ID capillary columns
- Series connection option
- Excellent sensitivity over a wide dynamic range

### TCD Add-On Kit (Manual Pneumatics)

Kit includes all necessary items to install the TCD into the instrument: detector, heater, sensor, heater block, 1/16 in. gas line, and flow controller pneumatics. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position.

Voltage	Part No.
120 V Clarus	<b>N6520022</b>
230 V Clarus	<b>N6520023</b>

### TCD Amplifier

Description	Part No.
TCD Amplifier	<b>N6120015</b>

### TCD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for reference gas. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position. The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	<b>N6120124</b>
240 V	<b>N6120125</b>

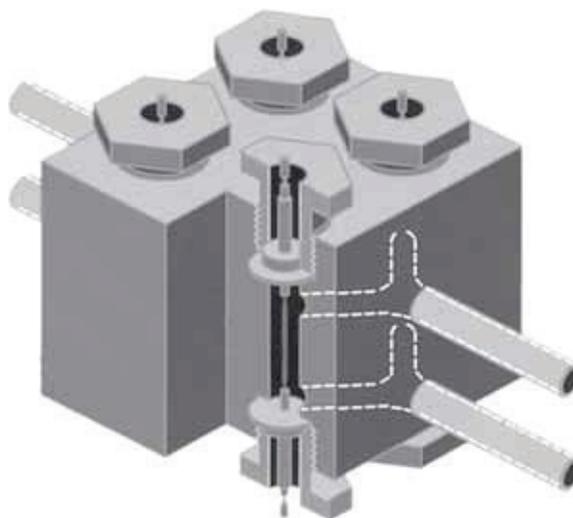
### TCD with PPC Makeup Gas Kit

Includes parts required to add PPC controlled makeup gas to an existing TCD. Includes tubing, tee-piece, PPC pneumatics module, and PPC frit #4 (**N6120155**). Requires PPC capability in the GC.

Description	Part No.
TCD with PPC Makeup Gas Kit	<b>N6120150</b>

## Column Adapter

Description	Part No.
1/8 to 1/4 in. Column adapter for use with 1/4 in. packed columns	<b>00080100</b>
1/8 to 1/16 in. Column adapter for use with capillary columns	<b>N6120020</b>



Thermal Conductivity Detector

## TCD/FID Series Operation Kit

TCD and FID series operation kit for directing effluent from a TCD to an FID.

Description	Part No.
TCD/FID Series Operation Kit	<b>N6120006</b>

### TCD Detector Makeup Gas Kit (Manual Pneumatics)

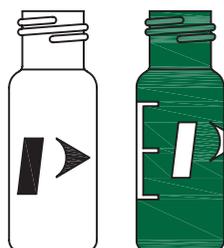
For use with TCD (at low flow rates). Required when using 0.25 mm ID and recommended when using 0.32 mm ID capillary columns. Kit includes 1 m of 1/16 in. tubing to connect to gas supply, graphite/vespel ferrules, manual pneumatics, and installation instructions.

Description	Part No.
TCD Detector Makeup Gas Kit (Manual Pneumatics)	<b>N6120080</b>

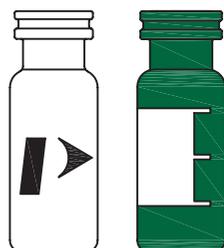
# Autosampler Vials

Our vials are manufactured from Type I Borosilicate Glass, which meets all USP, JP, and EP Pharmacopeia requirements. The glass performs excellently at high temperatures and is chemical resistant to acidic, neutral and alkali solutions. All our vials are packed in a clean environment to ensure you receive contaminant free product every time.

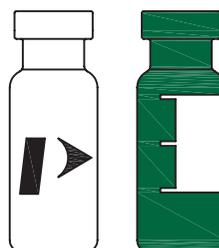
## 2 mL Autosampler Glass Vials (12 x 32 mm)



Screw Top



Snap Top

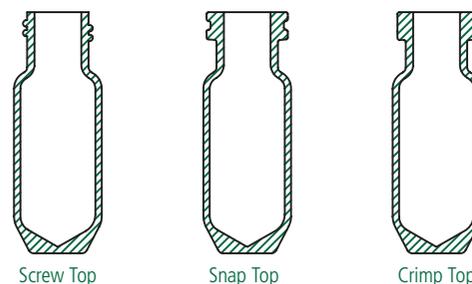


Crimp Top

Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
8	Screw	Clear glass	200	N9301069
8	Screw	Clear glass	100	N9302945
9	Screw	Clear glass	100	N9306201
9	Screw	Clear glass with write on patch and fill lines	100	N9307801
9	Screw	Clear glass with write on patch (deactivated)	100	N9304139
9	Screw	Amber glass	100	N9306220
9	Screw	Amber glass with write on patch and fill lines	100	N9307802
9	Screw	Amber glass with write on patch and fill lines (deactivated)	100	N9304140
10	Screw	Clear glass with write on patch and fill lines	100	N9306053
10	Screw	Amber glass with write on patch and fill lines	100	N9306057
11	Crimp	Clear glass	100	N9301385
11	Crimp	Clear glass with write on patch and fill lines	100	N9306223
11	Crimp	Clear glass with write on patch and fill lines (deactivated)	100	N9304135
11	Crimp	Amber glass	100	N9302680
11	Crimp	Amber glass with write on patch and fill lines	100	N9302679
11	Crimp	Amber glass with write on patch and fill lines (deactivated)	100	N9304136
11	Snap	Clear glass	100	N9303418
11	Snap	Clear glass with write on patch and fill lines	100	N9306207
11	Snap	Clear glass with write on patch and fill lines (deactivated)	100	N9304137
11	Snap	Amber glass with write on patch and fill lines	100	N9306208
11	Snap	Amber glass with write on patch and fill lines (deactivated)	100	N9304138

## 1.5 mL Autosampler High Recovery Vials

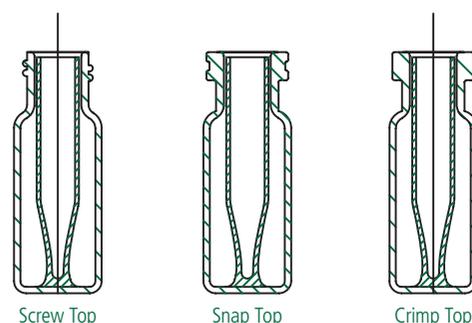
Manufactured from the same high quality Type 1 Class A borosilicate glass as our standard 2 mL vials, these high recovery vials provide efficient handling of a range sample volumes from 30 µL to 1.5 mL, with the convenience of a single vial format.



Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
9	Screw	Clear glass	100	N2926202
11	Snap	Clear glass	100	N2926201
11	Crimp	Clear glass	100	N2926200

## Autosampler Vials with Fused Inserts

For easy sampling, try our glass vials with fused sample inserts; a variety of volumes are available in either clear or amber glass. They are ideal when handling micro volume samples.



Neck ID size (mm)	Capacity	Vial Top Type	Vial Description	Pkg.	Part No.
8	100 µL	Screw	Clear glass	100	N9300713
8	100 µL	Screw	Amber glass	100	N9300714
8	200 µL	Crimp	Clear glass	500	N9302136*
9	300 µL	Screw	Clear glass	100	N9300715
9	300 µL	Screw	Amber glass	100	N9300716
10	300 µL	Screw	Clear glass	100	N9300717
10	300 µL	Screw	Amber glass	100	N9300718
11	300 µL	Crimp	Clear glass	100	N9300709
11	300 µL	Snap	Clear glass	100	N9300711
11	300 µL	Crimp	Amber glass	100	N9300710
11	300 µL	Snap	Amber glass	100	N9300712

\*N9302136 should be used with glass vial support sleeve N9307027

## Waste and Wash Vials, Caps and Septa for GC

ID Size (mm)	Product Description	Screw		
		Part No. Pkg. 1	Part No. Pkg. 100	Part No. Pkg. 1000
13	Clear Glass Vial – 4 mL (15 x 45 mm)	09923031	N9306247	
	200 µL Vial Insert			N9302681
	Support for Vial Insert			N9302682*
13	Black Cap with PTFE/Silicone (Ultra Low Bleed) Septa		N9304141	N9304142
13	Black Phenolic Cap (no septa)	09923032		
13	Silicone Septa (no cap)		N9302780	
	Vial Diffuser	N6101276		

\*N9302682 is Pkg. 500

# Autosampler Caps and Septa

PerkinElmer offers a variety of caps and septa to fulfil your application needs. Our screw thread vial caps use the revolutionary Inter-Seal®. Using a process that bonds silicone/PTFE and other elastomeric compounds directly into thermoplastic closures eliminates liner fallout, while still providing the excellent re-sealability and multiple injection capability. No adhesives are used in this process, bonding the cap and septa at the molecular level of plastic and rubber. These septa have a very broad chemical resistance and can be used in many markets including: environmental, diagnostic packaging, pharmaceutical packaging, cosmetic and food packaging.



## Pre-Assembled Cap and Septa

For your convenience, a wide range of pre-assembled caps and septa are available, in differing pack sizes.

Neck ID Size (mm)	Septa Type	Cap Type	Closure Type	Pkg.	Part No.
8	PTFE	Aluminium	Crimp	1000	N9302140
8	PTFE/red rubber	Aluminium	Crimp	1000	03300806
8	PTFE/silicone	Black flanged cap	Screw	100	N9303449
8	PTFE/silicone (pre-slit)	Polyethylene	Snap	1000	N9302141
9	PTFE/red rubber	Blue (polypropylene)	Screw	100	N9306200
9	PTFE/silicone	Blue (polypropylene)	Screw	100	N9306360
9	PTFE/silicone	Blue (polypropylene)	Screw	1000	N9306361
9	PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	100	N9306362
9	PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	1000	N9306363
9	PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	100	N9306364
9	PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	1000	N9306365
9	PTFE/silicone (pre-slit)	Blue (polypropylene)	Screw	100	N9306203
9	PTFE/silicone	Blue (polypropylene)	Screw	1000	N9306202
10	PTFE/red rubber	Black (polypropylene)	Screw	100	N9306206
10	PTFE/silicone	Black (polypropylene)	Screw	100	N9306205
10	PTFE/silicone (pre-slit)	Black (polypropylene)	Screw	100	N9306052
11	PTFE/red rubber	Aluminium (silver)	Crimp	100	N9306015*
11	PTFE/red rubber	Aluminium (green)	Crimp	100	N9302684
11	PTFE/red rubber	Aluminium (red)	Crimp	100	N9302685
11	PTFE/red rubber	Aluminium (blue)	Crimp	100	N9302686
11	PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	N9307823
11	PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	N9306228
11	<b>NEW</b> PTFE/Silicone (red/white) Ultra low bleed	Aluminium (silver)	Crimp	100	N9304148
11	<b>NEW</b> PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	100	N9304149
11	<b>NEW</b> PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	1000	N9304185
11	PTFE/silicone (red/white)	Clear plastic (polyethylene)	Snap	100	N9303419
11	PTFE/silicone (red/white) pre-slit	Clear plastic (polyethylene)	Snap	100	N9303416
11	PTFE/silicone/PTFE	Aluminium (silver)	Crimp	100	N9306229
11	PTFE/silicone/PTFE	Gold magnetic	Crimp	100	N6356473
11	PTFE/silicone/PTFE	Clear plastic	Snap	100	N9303417
11	Aluminium/PTFE	Aluminium (silver)	Crimp	500	N9302139
11	Black viton	Aluminium (silver)	Crimp	1000	N9302784

\*Same Part No. as N9306230

## Un-Assembled Cap and Septa

Neck ID Size (mm)	Description	Material	Closure Type	Pkg.	Part No.
8	Septa	PTFE/red rubber	–	100	N9303442
8	Cap	Phenolic cap	Screw	100	N9303441
11	Septa	PTFE/silicone	–	12	00091357
11	Septa	PTFE/silicone (pre-split)	–	500	N9307021
11	Cap	Clear plastic cap with slit	Snap	500	N9307023

## Autosampler Vial, Cap and Septa Convenience Kits

Available with either glass or polypropylene vials and a range of cap choices, these autosampler vial, cap and septa kits make it surprising simple to re-stock your laboratory. For your added convenience, the most popular kits are also available in 1000 pack size.



ID Size (mm)	Septa Type	Cap Type	Vial Type	Screw Top	Screw Top	Screw Top
				Part No. Pkg. 100	Part No. Pkg. 500	Part No. Pkg. 1000
8	PTFE/Silicone	Black Cap	Clear Glass	N9301945		
9	PTFE/Red Rubber	Blue Cap	Clear Glass	N9300699		N9300910
9 (certified)	PTFE/Silicone	Blue Cap	Amber Glass	N9300719		N9300911
9	PTFE/Silicone	Blue Cap	Clear Glass	N9300700		N9300912
9 (certified)	PTFE/Silicone	Blue Cap	Clear Glass	N9300707		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Amber Polypropylene	N9301735		
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Amber Glass	N9300720		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene	N9301736		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene (300 µL capacity)		N9306080	
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Clear Glass	N9300708		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Glass	N9300701		
10	PTFE/Silicone (Pre-Slit)	Black Cap	Clear Glass	N9300695	N9300650	N9300913
10	PTFE/Silicone (Pre-Slit)	Black Cap	Amber Glass	N9300696		N9300914

ID Size (mm)	Septa Type	Cap Type	Vial Type	Crimp Top	Crimp Top	Snap Top
				Part No. Pkg. 100	Part No. Pkg. 500	Part No. Pkg. 100
11	PTFE/Red Rubber	Aluminum Cap	Clear Glass	N9300502	N9300503	
11	PTFE/Silicone	Aluminum Cap	Clear Glass	N9300500		
11	PTFE/Silicone	Clear Plastic Cap	Clear Glass			N9300702
11	PTFE/Silicone (Pre-Slit)	Clear Plastic Cap	Clear Glass			N9300697
11	PTFE/Silicone/PTFE	Aluminum Cap	Clear Glass	N9300501		
11	PTFE/Silicone/PTFE	Clear Plastic Cap	Clear Glass			N9300698

# Crimpers: Electronic, Handheld and Benchtop

## Crimping Tools and Vial Accessories

Whatever your need may be, PerkinElmer offers a wide range of crimping tools for your convenience. Our universal voltage, precision control, power crimpers with adjustable settings are designed to deliver hundreds of crimps on a single battery charge. The tools are ergonomically designed to reduce strain associated with the repetitive actions of using a blocky metal manual crimping tool.



## Autosampler Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	N6621006
Benchtop Crimper Jaws – 11 mm	1	N6621008
Electronic Hand Crimper – 11 mm	1	N9304500
Electronic Hand Decapper – 11 mm	1	N9304502
Manual Hand Crimper – 8 mm	1	N9306127
Manual Hand Crimper – 11 mm	1	00090699
Manual Hand Crimper (Ergonomic) – 11 mm	1	N6621035
Manual Hand Decapper – 11 mm	1	N9301390
Manual Hand Decapper (Ergonomic) – 11 mm	1	N6621036

## Headspace Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	N6621006
Benchtop Crimper Jaws – 20 mm	1	N6621009
Electronic Hand Crimper – 20 mm	1	N9304501
Electronic Hand Decapper – 20 mm	1	N9304503
Manual Hand Crimper – 20 mm	1	N9302785
Manual Hand Crimper (Ergonomic) – 20 mm	1	N6621037
Manual Hand Decapper – 20 mm	1	N9301270
Manual Hand Decapper (Ergonomic) – 20 mm	1	N6621038

## High Powered Crimpers and Decappers

The high powered crimper and decapper is an essential laboratory accessory for any high through put environment. Realize the benefits of not only fast and accurate crimping or decapping, but also the ultimate tool in flexibility with interchangeable jaw sets. Now in a single unit you can crimp and decap standard analytical vials and headspace vials. Changing the jaws, either size or function, takes a matter of just seconds.



## Vial Racks

Description	Qty.	Part No.
11 mm Vial Rack – 50 Vial Capacity	1	N9301303
20 mm Vial Rack – 36 Vial Capacity	1	N9301304

Description	Qty.	Part No.
High powered crimping tool	1	N9304510
20 mm crimper jaw set	1	N9304511
20 mm decapper jaw set	1	N9304512
11 mm crimper jaw set	1	N9304513
11 mm decapper jaw set	1	N9304514
Base and mounting kit	1	N9304515

# GC Columns for GC/MS

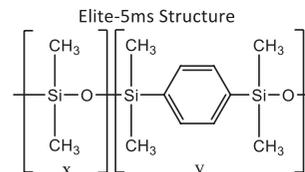
The Elite range of MS columns are engineered for extremely low bleed for MS detectors. Covering a range of polarities and applications.

## Elite-1ms

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 330/350		<b>N9305635</b>		
	2.00	-60 to 330/350		<b>N9305636</b>		
0.25	0.25	-60 to 330/350	<b>N9305637</b>		<b>N9305638</b>	<b>N9305639</b>
	0.50	-60 to 330/350	<b>N9305640</b>		<b>N9305641</b>	<b>N9305642</b>
	1.00	-60 to 330/350	<b>N9305643</b>		<b>N9305644</b>	<b>N9305645</b>
0.32	0.25	-60 to 330/350	<b>N9305646</b>		<b>N9305647</b>	<b>N9305648</b>
	0.50	-60 to 330/350	<b>N9305649</b>		<b>N9305650</b>	<b>N9305651</b>
	1.00	-60 to 330/350			<b>N9305652</b>	<b>N9305653</b>
	4.00	-60 to 330/350			<b>N9305654</b>	

## Elite-5ms

The Elite-5ms phase incorporates a phenyl group in the polymer backbone to improve thermal stability, reduce bleed and make the phase less prone to oxidation. This results in a phase that is inert to active compounds with extremely low bleed to meet the requirements of sensitive MS detectors. It is a general purpose column ideal for GC/MS analysis of semivolatiles, PAHs, chlorinated hydrocarbons, phthalates, phenols, amines, organochlorine and organophosphorus pesticides, drugs and solvent impurities.



- Temperature Range: -60 °C to 350 °C
- Similar to USP G27 and G36 phases

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 325/340		<b>N9316276</b> <sup>1</sup>	<b>N9316277</b> <sup>1</sup>
0.20	0.33	-60 to 330/350	<b>N9316301</b> <sup>2</sup>	<b>N9316302</b> <sup>2</sup>	<b>N9316303</b> <sup>2</sup>
0.25	0.25	-60 to 330/350	<b>N9316279</b>	<b>N9316282</b>	<b>N9316286</b>
	0.50	-60 to 330/350		<b>N9316284</b>	
	1.00	-60 to 325/350	<b>N9316280</b>	<b>N9316283</b>	<b>N9316287</b>
0.32	0.25	-60 to 330/350	<b>N9316289</b>	<b>N9316293</b>	<b>N9316297</b>
	0.50	-60 to 330/350		<b>N9316295</b>	
	0.52	-60 to 330/350		<b>N9316291</b> <sup>3</sup>	
	1.00	-60 to 325/350	<b>N9316290</b>	<b>N9316294</b>	<b>N9316298</b>
0.53	1.50	-60 to 310/330	<b>N9316299</b>	<b>N9316300</b>	

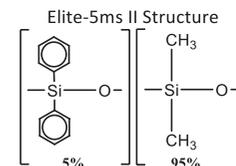
<sup>1</sup> The lengths of **N9316276** and **N9316277** are 20 m and 40 m, respectively

<sup>2</sup> The lengths of **N9316301**, **N9316302** and **N9316303** are 12 m, 25 m and 50 m, respectively

<sup>3</sup> The length of **N9316291** is 25 m

## Elite-5ms II

The Elite-5ms II columns incorporate the same phase as the Elite-5 columns but are specifically tested for low bleed performance.

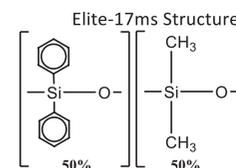


- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-60 to 330/350	N9305655	N9305656	N9305657
	0.25	-60 to 330/350	N9305658	N9305659	N9305660
	0.50	-60 to 330/350	N9305661	N9305662	N9305663
	1.00	-60 to 325/350	N9305664	N9305665	
0.32	0.10	-60 to 330/350	N9305666	N9305667	N9305668
	0.25	-60 to 330/350	N9305669	N9305670	N9305671
	0.50	-60 to 330/350		N9305672	N9305673
	1.00	-60 to 325/350	N9305674	N9305675	N9305698

## Elite-17ms

The Elite-17ms columns are general purpose, mid-polarity columns that are coated with a crosslinked, (50%-diphenyl)-dimethylpolysiloxane engineered for very low bleed to meet the requirements of sensitive MS detectors.



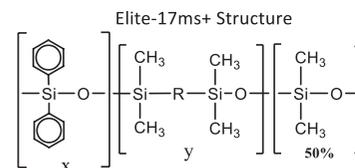
- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G3 phase

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	1.411	40 to 300/340	N9316534		
0.25	0.15	40 to 300/320	N9316535	N9316537	
	0.25	40 to 300/320	N9316536	N9316538	N9316539
0.32	0.15	40 to 300/320	N9316540	N9316542	
	0.25	40 to 300/320	N9316541		

We offer a comprehensive range of GC columns, both capillary and packed. For more details simply visit our chromatography consumables catalogue at [www.perkinelmer.com/chromsupplies](http://www.perkinelmer.com/chromsupplies) or ask your local sales representative.

## Elite-17ms+

The Elite-17ms+ columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures, as required by MS detectors. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that is inert and selective for active environmental compounds, such as PAHs.

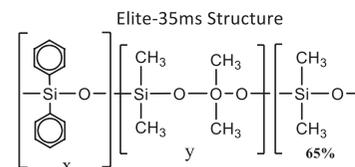


- Temperature Range: 40 °C to 360 °C
- Equivalent to USP G3 phase

ID (mm)	df (μm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.15	0.15	40 to 340/360	<b>N9305677</b>		<b>N9305678</b>		
0.18	0.18	40 to 340/360			<b>N9305679</b>		
	0.36	40 to 340/360			<b>N9305680</b>		
0.25	0.25	40 to 340/360		<b>N9305681</b>		<b>N9305682</b>	<b>N9305685</b>
0.32	0.25	40 to 340/360		<b>N9305683</b>		<b>N9305684</b>	

## Elite-35ms

The Elite-35ms columns are general purpose, mid-polarity columns offering extremely low bleed, as required by MS detectors, at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that are inert and selective for substituted polar compounds, such as drugs, pesticides, herbicides, PCBs and phenyls.

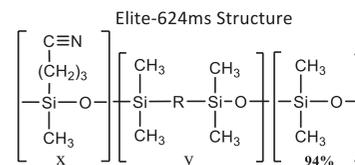


- Temperature Range: 50 °C to 340/360 °C
- Equivalent to USP G42 phase

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	50 to 340/360	<b>N9305686</b>	<b>N9305687</b>
	0.50	50 to 340/360	<b>N9305688</b>	<b>N9305689</b>
	1.00	50 to 320/340	<b>N9305690</b>	<b>N9305691</b>
0.32	0.25	40 to 340/360	<b>N9305692</b>	<b>N9305693</b>
	0.50	40 to 340/360	<b>N9305694</b>	<b>N9305695</b>
	1.00	40 to 320/340	<b>N9305696</b>	<b>N9305697</b>

## Elite-624ms

The Elite-624ms incorporates a unique proprietary blend of cyanopropyl and methyl siloxanes that results in a very inert, extremely low bleed and high thermal stability column. This column provides excellent peak shape for a wide range of compounds and is highly selective for residual solvents making it a great choice for USP method <467>.



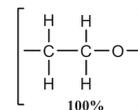
- Temperature Range: -20 °C to 240 °C
- Similar to USP G43 phase
- Ideal choice for USP method 467

ID (mm)	df (μm)	Temp Limits (°C)	20 m Part No.	30 m Part No.	60 m Part No.
0.18	1.00	-20 to 240	<b>N9315067</b>		
0.25	1.40	-20 to 240		<b>N9315068</b>	<b>N9315066</b>
0.32	1.80	-20 to 240		<b>N9315069</b>	<b>NEW N9315070</b>

## Elite-WAX

The Elite-WAX column, a Polar Polyethylene glycol (PEG) stationary phase column, is a general purpose polar PEG phase commonly used for the analysis of polar compounds like alkenols, glycols and aldehydes.

Elite-WAX Structure



- Temperature Range: 20 °C to 250 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.15	20 to 250	N9316399	N9316402	N9316405
	0.25	20 to 250	N9316400	N9316403	N9316406
	0.50	20 to 250	N9316401	N9316404	N9316407
0.32	0.15	20 to 250	N9316408	N9316411	
	0.25	20 to 250	N9316409	N9316412	N9316416
	0.50	20 to 250	N9316410	N9316413	N9316417
0.45	0.42	20 to 250	N9316420	N9316422	
	0.85	20 to 240/250	N9316419	N9316421	N9316423
	1.70	50 to 230	N9316418		
0.53	0.50	20 to 250	N9316426	N9316428	
	1.00	20 to 240/250	N9316425	N9316427	N9316429

## Elite-MWAX: Metal Column

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.53	1.00	20 to 240/250	N9316478

## Elite-WAX ETR

The Elite-WAX ETR (Extended Temperature Range) columns are manufactured with a special bonding process that binds the Carbowax® polymer to the polar deactivated silica. This results in a low bleed WAX column that exhibits extended lifetimes even when repeatedly heated to 260 °C. The bonding mechanism results in very stable polar retention that does not shift as often as observed with other WAX-type columns. This phase can be used for a wide range of compounds and matrices such as: FAMEs, flavor compounds, essential oils, solvents, aromatics, acrolein/acrylonitrile, impurities in water and alcoholic beverages.

- Temperature Range: 40 °C to 260 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases
- Suitable for EPA method 603

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.25	0.25	40 to 250		N9316547	N9316549		N9316551
	0.50	40 to 250		N9316548	N9316550		
0.32	0.25	40 to 250		N9316552	N9316555		N9316559
	0.50	40 to 250		N9316553	N9316556		N9316560
	1.00	40 to 240/250		N9316554	N9316557	N9316558	N9316561
0.45	0.85	40 to 240		N9316563	N9316564		N9316565
	1.70	40 to 230/250	N9316562				
0.53	1.00	40 to 240/250		N9316567	N9316569		N9316571
	2.00	40 to 220/230	N9316566	N9316568	N9316570		

# Advanced Filter System

The Advanced Filter System has high-capacity and efficiency levels for oxygen, water and hydrocarbons. The recommended maximum flow rate is 2 L/min with 200 psi maximum operating pressure.

A polycarbonate shield surrounding the glass indicator section of the filter is sealed, unlike other gas filters, the gas flow is secure even if the glass should break. This redundant sealing system and robust construction provides a new level of security in gas filtration.



## Features and Benefits

- Two indicators – for oxygen and moisture
- High capacity and efficiency in a single, easy to replace, cartridge
- Double-seal construction for safety
- Check valves protect gas lines during replacement
- Includes mounting hardware for bench or wall

Description	Part No.
Advanced Filter System	N9303963
Replacement Cartridge for Oxygen, Water and Hydrocarbons	N9303964
Manifold and Mounting Hardware	N9303139

Description	Capacity	Efficiency
Oxygen	850 cc	<5 ppb
Water	12 g	<20 ppb
Hydrocarbons	8 g	<5 ppb

## Features and Benefits

- High purity output insures 99.9999% pure gas
- No tool replacement of filter cartridges, no need to shut gas flow off with quick disconnect base plate
- Easy to read indicators to determine replacement interval
- Helium and Hydrogen specific cartridges available: operational with 15 minute purge after installation
- Safety shielding of glass filter with plastic cover
- Serial numbered for ease of tracking

## Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed. The expense of using high purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.

Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. Make-up gas also should be contaminant-free, or baseline fluctuations and excessive detector noise can occur. Detector gases should be free of water and hydrocarbons, or excessive baseline noise can result. Gas purifiers remove these contaminants from gas sources, thereby improving system performance.

When the easy to read indicators change color it is a signal on a major gas carrier problem; a major leak upstream or downstream, a high concentration of contaminants or to late replacement or filter replacement is overdue. This is the time to swap a filter.

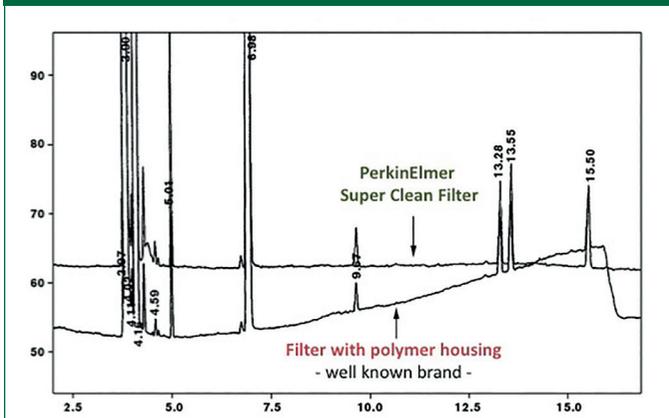
To prevent contamination or saturation issues, the filter should be swapped every 12 months, as a minimum, regardless the indicator has changed color or not. Some high throughput applications may need the filter changing every 6 months.

# Ultra Clean Gas Filters

Wrenches to change filters is a thing of the past. There is no longer a need for loosening and tightening fittings every time a trap is changed, which may contaminate your system during the process. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.



## Comparing baseline performance with PerkinElmer SuperClean filters vs. a competitive polymer housed filter.



# Ultra Clean Gas Filter Kits for GC and GC/MS

Available with different sized fittings, (1/8 in. or 1/4 in.) in brass or stainless steel, these complete filter kits contain everything you need to quickly and easily install into your analytical system; instantly assuring you of a continual high purity gas supply. A full listing of individual replacement cartridges are listed on page 30-31.

## Triple Filter Kit for MS/ECD/NPD

The triple combination filter kit is ideal for purifying GC/MS carrier gases. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge. There is a range of brass and stainless steel base plate fittings and options for hydrocarbon trap to be helium or hydrogen specific, in addition to the general carrier gas.

Description	Qty.	Part No.
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Brass Kit: Includes (1) 1 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	<b>N9306828</b>
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Brass kit: Includes (1) 1 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	<b>N9306829</b>
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/4 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	<b>N9306830</b>
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/8 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	<b>N9306831</b>
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon)	1	<b>N9306819</b>
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Helium specific filter	1	<b>N9306820</b>
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Hydrogen specific filter	1	<b>N9306822</b>



Configuration	Benefit
GC/MS	Higher data accuracy and less maintenance
GC/ECD	Greater sensitivity
GC/TCD	Greater sensitivity and less maintenance

## Complete Triple Filter Bundle Kit for FID

This complete filter kit is the perfect all-in-one solution for purifying Flame Ionization Detector (FID) fuel gases together with the carrier gas. The triple filter simultaneously hydrocarbons, moisture and oxygen are removed from the carrier gas and combi filter removes both moisture and hydrocarbons from the hydrogen and air fuel gases. The kit consists of one triple filter and two combi filters (hydrogen and air) together with one three position base plate. There are a range of base plate fittings options available.

Description	Qty.	Part No.
PerkinElmer 3 Filters Kit – 1/4 in. Brass: Includes (1) 3 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	<b>N9306842</b>
PerkinElmer 3 Filters Kit – 1/8 in. Brass: Includes (1) 3 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	<b>N9306843</b>
PerkinElmer 3 Filters Kit – 1/4 in. stainless steel: Includes (1) 3 position base plate with 1/4 in. stainless steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	<b>N9306844</b>
PerkinElmer 3 Filters Kit – 1/8 in. stainless steel: Includes (1) 3 position base plate with 1/8 in. stainless steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	<b>N9306845</b>
PerkinElmer triple filter – (Oxygen/Moisture/Hydrocarbon)	1	<b>N9306819</b>
PerkinElmer Combi (Hydrocarbon/Moisture) Filter	1	<b>N9306818</b>
PerkinElmer Filter Bundles: Includes (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	3	<b>N9306826</b>



Configuration	Benefit
GC/FID	Improved reproducibility and sensitivity

# Ultra Clean Gas Filters for GC and GC/MS

The easy to use leak-tight cartridge system enables rapid change of exhausted cartridges without interrupting supply or system operation. A wide range of individual cartridges or combination cartridges are available to suit a variety of applications.

## Ultra-High Capacity Moisture Filter

Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise. As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines.



Description	Part No.
Ultra-High Capacity Moisture Filter	<b>N9306814</b>
Capacity	
H <sub>2</sub> O	7.2 g
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H <sub>2</sub> , N <sub>2</sub> , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## Ultra-High Capacity Oxygen Filter

Oxygen is a column killer – it is present even in UHP gases. Because oxygen can enter a gas line at any fitting or during gas bottle exchange, the oxygen trap should be the last connection before the gas line enters the chromatograph.



Description	Part No.
Ultra-High Capacity Oxygen Filter	<b>N9306815</b>
Capacity	
O <sub>2</sub>	150 mL
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H <sub>2</sub> , N <sub>2</sub> , Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## Ultra-High Capacity Hydrocarbon Filter

Use a hydrocarbon trap if your gas has a potential source of hydrocarbon contaminants or if you suspect you are observing carrier gas ghost peaks. Install the hydrocarbon trap after the moisture trap, to prevent moisture from degrading the hydrocarbon-trapping ability of the activated carbon in the hydrocarbon trap.



Description	Part No.
Ultra-High Capacity Hydrocarbon Filter	<b>N9306816</b>
Capacity	
HC	12 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H <sub>2</sub> , N <sub>2</sub> , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## High Capacity Combi Filter

This filter is perfect for purifying Flame Ionization Detector (FID) fuel gases, removing both moisture and hydrocarbons. Using this filter for FID hydrogen and air will produce a stable baseline, improving overall reproducibility and sensitivity. Ideal for use in combination with a zero air generator.



Description	Part No.
High Capacity Combi Filter	<b>N9306818</b>
Capacity	
H <sub>2</sub> O	3.5 g
HC	6 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H <sub>2</sub> , N <sub>2</sub> , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## High Capacity Triple Filter

The triple trap is ideal for purifying carrier gas. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge.



Description	Part No.
High Capacity Triple Filter	<b>N9306819</b>
Capacity	
H <sub>2</sub> O	1.8 g
O <sub>2</sub>	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H <sub>2</sub> , N <sub>2</sub> , Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## High Capacity Triple Filter Helium Specific

The helium-specific triple trap is ideal for purifying helium in GC/MS systems. This trap is packed and purged under helium and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.



Description	Part No.
High Capacity Triple Filter Helium Specific	<b>N9306820</b>
Capacity	
H <sub>2</sub> O	1.8 g
O <sub>2</sub>	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	He
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## High Capacity Triple Filter Hydrogen Specific

The hydrogen-specific triple trap is ideal for purifying hydrogen in GC/MS systems. This trap is packed and purged under hydrogen and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.



Description	Part No.
High Capacity Triple Filter Hydrogen Specific	<b>N9306822</b>
Capacity	
H <sub>2</sub> O	1.8 g
O <sub>2</sub>	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	H <sub>2</sub>
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg

## Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS



Description	Qty.	Part No.
Ultra Clean Moisture Filter	1	<b>N9306814</b>
Ultra Clean Oxygen Filter	1	<b>N9306815</b>
Ultra Clean Hydrocarbon Filter	1	<b>N9306816</b>
Ultra Clean Combi (Hydrocarbon/Moisture) Filter	1	<b>N9306818</b>
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Filter	1	<b>N9306819</b>
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Helium-Specific Filter	1	<b>N9306820</b>
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Hydrogen-Specific Filter	1	<b>N9306822</b>

# Click-On In-line Super Clean Purifiers

Using the Click-On Connectors lets you change the trap without introducing contaminants into your system. Click-On connectors can replace a trap, without introducing impurities into the system. This in turn eliminates the need to flush the system.

The ability to add a Click-On In-line Super Clean™ Indicator after the stainless steel trap gives the user a clear visual indication of when to change the filter. This indicator may also be used as a standalone trap.

## Features and Benefits

- Reduce system downtime with Click-On fast connectors
- No open gas line when changing the trap
- Helium Specific Glass Indicating Triple Trap is ideal for GC/MS

## Stainless Steel Trap Kits

Description	Connector (Qty.)	Part No.
Combination: Oxygen/Moisture Trap	1/8 in. Brass (2)	<b>N9306108</b>
Combination: Oxygen/Moisture Trap	1/8 in. Stainless Steel (2)	<b>N9306109</b>
Combination: Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	<b>N9306117</b>
Combination: Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	<b>N9306118</b>
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	<b>N9306110</b>
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	<b>N9306111</b>
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	<b>N9306112</b>
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	<b>N9306113</b>

## Product Specifications

Purifier Type	Gas Quality*	Max Pressure	Max Flow	Use For	H <sub>2</sub> O	Capacity O <sub>2</sub>	Hydrocarbons	Est. Lifetime
Moisture	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H <sub>2</sub>	21 g	–	–	> 3 years
Oxygen	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas	–	3,000 mL	–	> 3 years
Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas Air, H <sub>2</sub>	–	–	36 g (as <i>n</i> -butane)	> 3 years
Combination Moisture/Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H <sub>2</sub>	10 g	–	18 g (as <i>n</i> -butane)	> 2 years
Indicating Triple Moisture/Oxygen/Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He	3 g	400 mL	5 g (as <i>n</i> -butane)	> 1 year
Triple Moisture/Oxygen/Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas	6 g	1,000 mL	12 g (as <i>n</i> -butane)	> 2 years

\*Results @ 2 L/min



## Stainless Steel Traps

Description	Part No.
Moisture Trap	<b>N9306100</b>
Oxygen Trap	<b>N9306101</b>
Hydrocarbons Trap	<b>N9306102</b>
Combination: Oxygen/Moisture Trap	<b>N9306103</b>
Combination: Moisture/Hydrocarbons Trap	<b>N9306105</b>
Triple: Oxygen/Moisture/Hydrocarbons Trap	<b>N9306104</b>
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	<b>N9306106</b>

## Helium Specific Glass Indicating Triple Trap for your PerkinElmer Clarus GC/MS

This trap contains oxygen, moisture and hydrocarbons adsorbents in one trap and is packed and purged under helium.

The glass indicating trap clearly shows when the filter needs to be replaced with the use of color changes. The packing material is a silica-based environmentally friendly substitute for cobalt dioxide (blue) in the moisture indicator.

Available as a kit with the necessary 1/8 in. brass connectors, and as a replacement trap. This system is easy to install.

Description	Connector (Qty.)	Part No.
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	Not Included	<b>N9306107</b>
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	<b>N9306114</b>
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	<b>N9306116</b>

## Hydrocarbon Trap



Use our activated charcoal in-line trap to remove gaseous hydrocarbons (C5 and heavier) from nitrogen, hydrogen and inert carrier gas supplies. Recommended for use with purge and trap apparatuses, high-sensitivity FID operations and with GC carrier gases for trace analyses. Frits in each end prevent particulates from entering the gas stream. Trap is shipped filled with helium. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings. Weight is 1.0 Kg.

Description	Part No.
Hydrocarbon Trap	N9301192

## High Capacity Hydrocarbon Trap



- Eliminates potential hydrocarbon background to insure best LC/MS results
- Contains 750 cc of preconditioned activated charcoal
- Stainless steel body. 1/4 in. brass compression fittings with ferrules for installation
- Maximum pressure 200 psi
- Recommended flow rate up to 2 L/min
- Will remove hydrocarbon impurities (50 ppm or less) from inert gases, nitrogen and hydrogen at room temperature to low ppb range
- Capacity of 67 g. of hydrocarbons C5 and heavier
- 10 µm stainless steel porous frits protect gas stream from particulates
- Individually helium leak tested. Shipped filled with helium
- 2 in. OD x 20 in. L (including fittings)
- Weight 3.5 lb/1.6 Kg

Description	Part No.
High Capacity Hydrocarbon Trap	N9301208

## Indicating Oxygen Trap



This high-efficiency indicator trap reduces oxygen to less than 0.1 ppm. Changes color from bright green to gray when adsorption capacity is depleted. Oxygen capacity for this compact unit is 0.05 g at STP. The non-contaminating, heavy-wall inner glass tube of adsorbent is protected from breakage by the outer plastic tube. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.2 Kg.

Description	Part No.
Indicating Oxygen Trap	N9301191

## Oxygen Trap



This high-capacity, high-efficiency trap is used for long-term protection of capillary column stationary phases against oxidation at GC operating temperatures. Can remove 3.5 g of oxygen and has an output efficiency of less than 10 ppb oxygen concentration at the outlet. Effective at removing sulfur compounds, such as hydrogen sulfide and mercaptans. Intended for use with non-oxidizing gases such as He, Ar, N<sub>2</sub>, H<sub>2</sub> or CH<sub>4</sub>, containing less than 1% oxygen. The trap is filled with 500 cc of active oxygen adsorbent that binds covalently with oxygen; no gas is generated from this reaction. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings, weight is 1.2 Kg.

Description	Part No.
Oxygen Trap	N9301179

## Safe Glass Moisture Trap



Gas contacts only glass, metal and the adsorbents for purity. The Drierite® indicator and molecular sieve 5A are packed in glass protected by an outer plastic tube in the event that the glass breaks. Unique loading design allows operation in any orientation without channeling. Designed for GC detectors that require high purity gases and recommended for ELCD and ECD systems where moisture and contamination are a problem. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.3 Kg.

Description	Part No.
Safe Glass Moisture Trap	N9301193

## Gas In-line Filter



The Gas In-line Filter Trap removes moisture, oil and dust from nitrogen or inert supply gases. It has 400 cc total volume of molecular sieve 5A and an indicator in a clear acrylic tube. The indicating Drierite® changes color at low relative humidity indicating that the packing must be changed. Base-plate version is available for free-standing orientation. Maximum pressure is 100 psi (6.9 bar). Dimensions are 6 x 43 cm including fittings. Weight is 1.0 Kg.

Description	Part No.
Gas In-line Filter	N9301178

# Regulators

## Pressure Regulators

Ideally suited for chromatographic carrier gas applications including FID, TCD, ECD, HID, and non-corrosive gas mixtures for analytical instrumentation.



## Technical Specifications

Specifications	Single Stage – Stainless Steel (Thread-less Seat) Part No. N9306353	Single Stage – Brass Nickel-plated (Thread-less Seat) Part No. N9306354
Max Rated Inlet Pressure	1,250 psig	1,200 psig
Outlet Pressure Ranges	0 – 30, 0 – 60, 0 – 100, 0 – 250 psig	0 – 25, 0 – 50, 0 – 100, 0 – 250 psig
Flow capacity	Cv=0.066	Cv=0.15
Ambient Operating Temp	-40° F to +165° F	-40° F to +165° F
Designed Leak Rate	2 x 10 <sup>-8</sup> ccs (helium)	Bubble-tight (helium)
Weight	2 lbs	2.4 lbs
Ports (4)	¼ in. FNPT	¼ in. FNPT
Fittings	1/8 in.	1/8 in.
Inlet	1/8 in. FNPT	1/8 in. FNPT
Outlet	1/8 in. FNPT	1/8 in. FNPT
Decay Inlet Characteristic	–	0.23/100 psi
Materials		
Body	316 Stainless Steel	Nickel-Plated Brass
Bonnet	Nickel Plated Brass	Nickel Plated Brass
Seat	PCTFE®	PTFE
Diaphragm	Hastelloy C-22	316 Stainless Steel
Diaphragm Hastelloy C-22 Gauge	2½ in. Stainless Steel	–
Filter	316 Stainless Steel	316 Stainless Steel
Trim	316 Stainless Steel	Nickel Plated Brass
Gauges	–	2½ in. Stainless Steel
Valve Stem	–	316 Stainless Steel
Valve Spring	–	316 Stainless Steel

## High Purity Brass Regulators

PerkinElmer regulators are constructed of high purity brass barstock and have stainless steel diaphragms and metal-to-metal seals. They are suitable for use with high purity (>99.995% pure) non-corrosive gases. Regulators terminate in a 1/4 in. NPT Swagelock fitting.



## Features and Benefits

- Barstock body construction
- Stainless steel diaphragms
- Metal-to-metal seals
- Use with high purity carrier gas

## High Purity Brass Regulators (Dual Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	H <sub>2</sub> and Ar/CH <sub>4</sub>	4 – 100	0 – 200	0 – 4,000	<b>09907128</b>
CGA-580	He, Ar, N <sub>2</sub>	4 – 100	0 – 200	0 – 3,000	<b>09907127</b>

## High Purity Brass Regulators (Single Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	CO, H <sub>2</sub> and Ar/CH <sub>4</sub> Mixes	4 – 100	0 – 150	0 – 4,000	<b>00230091</b>
CGA-350	CO, H <sub>2</sub>	10 – 200	0 – 400	0 – 4,000	<b>00230253</b>
CGA-590*	Air	10 – 200	0 – 400	0 – 4,000	<b>00230090</b>

\*Supplied with 590-580 Adapter

# FlowMark Electronic Flowmeter



PerkinElmer's FlowMark™ flowmeter is specifically designed for use with gas chromatography (GC) instruments. The probe is applied directly to the gas flow stream and the measured flow rate is presented on the LCD screen. Units of flow are measured in mL/min. This unit provides continuous real-time measurements of gas streams ranging from 0.50 mL/min to 500 mL/min. Because the technology uses volumetric flow measurement, the unit is compatible with all laboratory gases. The flowmeter is designed to measure clean, dry, non-corrosive gases.

## Features and Benefits

- Measures volumetric flow for all gases across a range of 0.5–500 mL/min
- NIST traceable calibration
- Explosion-proof rating for flammable and explosive gas atmospheres
- Accuracy of  $\pm 2\%$  of flow or  $\pm 0.2$  mL/min, whichever is greater
- Over range indicator
- Auto shut-off feature
- Ergonomic design and side grips for comfort
- Measures most gas types
- Convenient storage case included
- CE, Ex (Compliance: WEEE, RoHS) certified
- Uses 2-AA batteries
- Data output via USB port
- Re-calibration service available
- Designed to measure clean, dry, non-corrosive gases
- 1 year warranty

Description	Part No.
FlowMark Electronic Flowmeter	N9307086
Recalibration Service for FlowMark Flowmeter	N9307085
Soft Carrying Case	N9306142

# Portable Gas Leak Detector

The new PerkinElmer compact handheld electronic gas leak detector is the ideal solution for detecting gas leaks in your Gas Chromatography systems. Leaks in your system waste gas and can cause detector noise, baseline instability, and shorter column life. This portable unit detects minute leaks of any gas with thermal conductivity different from air. The reference gas inlet draws in ambient air for comparison to air drawn into the sample probe. A leak is detected by both LED bar graph display and audible alarm.



## Detectable Gases

Gas Type	Minimum Detectable Leak Rate (atm cc/sec)	Indicating LED Light Color
Helium	$1.0 \times 10^{-5}$	Red
Hydrogen*	$1.0 \times 10^{-5}$	Red
Nitrogen	$1.4 \times 10^{-3}$	Yellow
Argon	$1.0 \times 10^{-4}$	Yellow
Carbon Dioxide	$1.0 \times 10^{-4}$	Yellow

Description	Specification
Battery	Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Universal Power Adapter Set	US, UK, European, Australian plugs included
Temperature Range	32 – 120 °F (0 – 48 °C)
Humidity Range	0 – 97%
Warranty	1 Year
Certifications	CE, Japan
Compliance	WEEE, ROHS

## Features and Benefits

- Sleek ergonomic, hand-held design with rugged side grips
- Automatic shut-off capabilities
- Optimized sample flow path
- LED readout and audible alarm

Description	Part No.
Portable Electronic Leak Detector	N9306089
Soft Carrying Case	N9306142
Probe (Fine Tip)	N9306063

\* Caution: The PerkinElmer leak detector is not designed for determining leaks in a combustible environment. This unit may be used for determining trace amounts of hydrogen in a GC environment only

## Ordering Information

Place your order online at: [www.perkinelmer.com/shop](http://www.perkinelmer.com/shop)

Online ordering is currently available in Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Ireland, Italy, Luxemburg, the Netherlands, Norway, Puerto Rico, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Please contact your local PerkinElmer Customer Care Representative.  
Or visit [www.perkinelmer.com/lasoffices](http://www.perkinelmer.com/lasoffices).

Visit us online at [www.perkinelmer.com/lasoffices](http://www.perkinelmer.com/lasoffices) to obtain the correct address for mailing your company Purchase Order.

## Return Goods Policy

Before returning any item to PerkinElmer, please obtain a Return Authorization Number from a customer service representative. Call your local PerkinElmer office and please have the following information ready:

- Our Order Number or your Purchase Order Number
- The PerkinElmer part numbers of the items that you wish to return
- Reason for return

Our customer service representative will provide you with a Return Authorization Number and the return address. We cannot accept any returns without a Return Authorization Number. Policy may vary. Please contact your local PerkinElmer representative for details.

## Technical Support

For technical assistance, please contact your local PerkinElmer Customer Care Representative. See local office listings.

Check with your local PerkinElmer Customer Care center for current pricing.

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