

GC Consumables & Accessories

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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GC Inlet Septa

We offer a range of inert septa, suited to different application needs. The blue septa offer a high-performance cost-effective alternative, offering a good level of inertness and are recommended for GC applications.



[VIEW PAGE](#)

Marathon Filament

The marathon filament has been engineered to provide exceptional long life and withstand difficult chromatography conditions.



[VIEW PAGE](#)

Ferrules

Graphite and Graphite/Vespel ferrules in different configuration are available. The choice of which depends on your application or use within the GC instrument.



[VIEW PAGE](#)



Superior sensitivity, capacity, and throughput – with flexibility to handle more applications

Our new Clarus® 590 and 690 systems are making GC more productive, more consistent – and more flexible than ever. Productive, because our proprietary autosampler technology, superfast oven cool-down, and programmable temperature injectors make it much more efficient. Consistent, because it delivers precise, repeatable sample introduction and fewer reruns. And flexible, because we integrate best-in-class TurboMatrix® headspace, thermal desorption, and hands-free liquid or SPME sample prep. Highly capable Clarus systems are simply better for the most important applications of all – those most important to you.

Learn more at www.perkinelmer.com/gc



GC Inlet Septa



Injector septa used in Gas Chromatography provide a critical role in maintaining system isolation but allowing the sample to be introduced onto the column in a Quantative manor. Since the injector septa provide the seal between the inner workings of the injector and the laboratory environment, it must have several desirable characteristics. For best performance the septa should be inert, low off-gassing of silicone oligomers, soft enough to avoid bending the needle and reseal after injection and resistant to coring by the syringe.

We offer a range of inert septa, suited to different application needs. The BTO (orange) septa offer the ultimate in inertness and are ideally suited to GC/MS applications and trace analysis. The mid-range advanced green septa combine low inlet adhesion properties with long lifetime and are recommended for GC applications. The blue septa offer a high-performance cost-effective alternative, offering a good level of inertness and are also recommended for GC applications.

Features and Benefits

- Select from a range of GC septa with varying properties limits
- Non-stick coating ensures no adhesion of the septa to the GC inlet
- Pre-conditioned septa, ready to use
- The CenterGuide design facilitates needle penetration to the same point with every injection, for easy and rugged operation
- Pre-pierced BTO septa provide long autosampler injection life
- Stay clean surface does not attract dust
- Compatible with all GC instruments

BTO (Orange)

Septa rated to 400 °C. The precision molded silicone rubber septa BTO® (Bleed Temperature Optimized) are premium ultra-low bleed injector septa for today's most demanding applications. The BTO septa are uniquely formulated to extend ultra-low bleed characteristics and outstanding mechanical properties. It retains remarkable softness, even at high temperatures, and has been optimized to reduce injection port adhesion, with the addition of a non-stick coating. The pre-pierced BTO septa also benefit from the CenterGuide design. They have a recess on the injection side to help guide the syringe needle to the same point for every injection. The BTO septa are recommended for GC/MS applications.

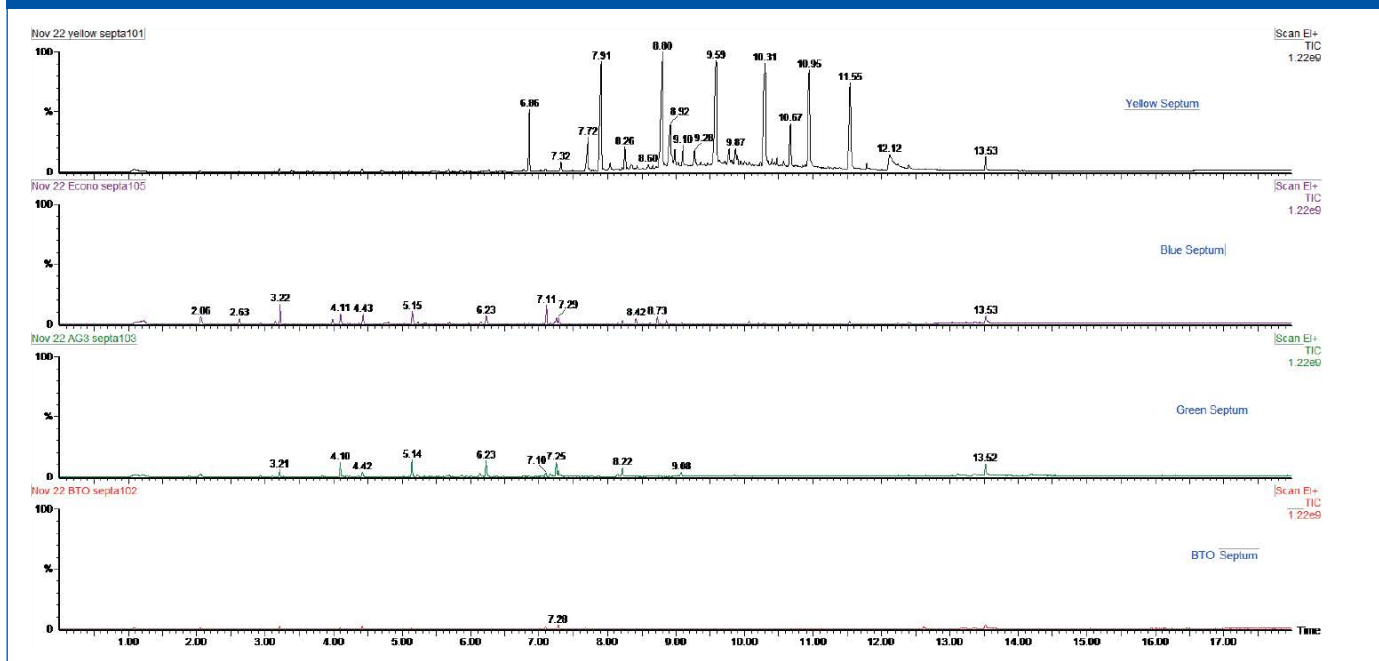
Green

Septa rated to 350 °C. The advanced green septa were created to combine significantly longer injection life, low bleed and low injection port adhesion. These septa also benefit from also with the non-stick coating and the CenterGuide design. The result is a mid-range general purpose septum made of uniquely formulated silicone rubber you can use for all your daily analyzes.

Blue

Septa rated to 275 °C. The blue septa are designed for routine applications. Employing a soft silicone rubber material and stay clean surface, they are easy to penetrate without a recess. As the blue septa used at lower operating temperatures the non-stick coating is not required to prevent inlet adhesion. They offer a low level of inertness and for routine GC applications providing optimum performance at lower operating temperatures.

Comparison of septa bleed by TD-GC/MS.



Septa come packed in a glass jar, for high purity. Or select the disc format where septa are located in individual pockets for ease of selection and avoids any risk of cross contamination.








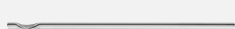
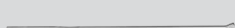
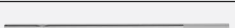
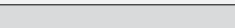
Description	Quantity	Part No.
BTO Orange Injection Port Septa	50	N9302972
BTO Orange Injection Port Septa	10	N9306872
Green Injection Port Septa	50	N9306219
Green Injection Port Septa	10	N9306218
Blue Injection Port Septa	50	N9306874
Blue Injection Port Septa	10	N9306873

Clarus 480, 580, 680 GC Capillary Inlet Liners

Inlet liners for split injection have mixing chambers with tortuous flow paths to allow full vaporization of the sample. Deactivating the surface of these liners prevents active compounds from degrading. Packing the liner with wool will trap non-volatile residue and prevent column contamination when analyzing dirty samples.





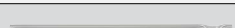

Inlet liners for splitless injection are generally designed as straight tubes, although new designs such as the gooseneck will help contain the sample in the injector. Packing these liners with wool will also help trap non-volatile residue and prevent column contamination.

Split Injector Liners*

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Split Glass Liner Ultra Deactivated Surface Liner (with wool) – Universal liner for general purpose analysis	4	6.2	92.1	5	N6121020
	Split Glass Liner (with wool) – Universal liner for general purpose analyzes	4	6.2	92.1	5	N6502009
	Split Siltek Deactivated Glass Liner (with wool) – Universal liner for general purpose analyzes	4	6.2	92.1	5	N6502010
	Clarus Cup Split Glass Liner – Good for both high and low molecular weight compounds	4	6.2	92.1	5	N6502011
	Uniliner Deactivated Glass Liner (with wool) – Universal liner for general purpose analyzes	4	6.2	92.1	5	N6121022
	Zero Dilution Glass Outer Liner – Ideal for trace HS work. Use in conjunction with N1011446	2	6.3	90	1	N1011445
	Zero Dilution Glass Inner Liner – Ideal for trace HS work. Use in conjunction with N1011445		2	73	1	N1011446
	Quartz Liner for Split Operation – Good for large volume injection samples	4	6.2	92.1	1	N6121001
	Glass Liner for Split Operation – Universal liner for general purpose analyzes	4	6.2	92.1	1	N6101052




* Not compatible with Clarus 590/690 capillary injector.

Splitless Injector Liners*

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Clarus Splitless Glass Liner – Low volume sample analyzes, beneficial with headspace and purge/trap	1	6.2	92.1	5	N6502006
	Quartz Liner for Splitless Operation (ships with instrument) – Standard injector liner	2	6.2	92.1	1	N6121002
	Glass Liner for Splitless Operation – Universal liner for general purpose analyzes	2	6.2	92.1	1	N6101372
	Deactivated Glass Liner for Splitless Operation (with wool) – Good for analyzes of trace samples	2	6.2	92.1	5	N6121021
	Wide-Bore Column Glass Liner (for 0.53 mm ID columns)	4	6	92.1	1	N6101375
	Wide-Bore Column On/Off Quartz Liner (for 0.53 mm ID columns)	4	6	92.1	1	N6121003

* Not compatible with Clarus 590/690 capillary injector.

Split/Splitless Injector Liners*





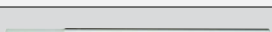




Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Capillary Split/Splitless Deactivated Glass Liners with Deactivated Wool	4	6.2	92.1	5	N9306233
	Capillary Split/Splitless Deactivated Glass Liners with Deactivated Wool and Tapered End	4	6.2	92.1	5	N9306235
	Capillary Split/Splitless Deactivated Glass Liners with deactivated Wool. Quartz wool is used to fully vaporize the sample	4	6.2	92.1	5	N9306236

*Not compatible with Clarus 690/590 GC capillary injector.




Clarus 590, 690 Capillary GC Inlet Liners

For the capillary injector on the Clarus 590 or 690 GC system, the liners are required to be 78.5 mm long. These liners are not compatible with the older Clarus GC systems (480, 580, 680 and any prior models).




Split Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	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 Straight Inlet Liner, no Wool (for P&T, HS, Gas Sampling)	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
	Ultra Deactivated Single Low Pressure Drop Precision Liner with Wool	4	6.3	78.5	5	N6502032
	Ultra Deactivated Straight Inlet Liner with Wool for Split/Splitless Inlets	4	6.3	78.5	5	N6502036

Splitless Injector Liners


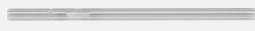

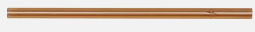

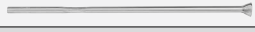


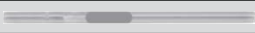


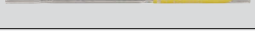
Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Ultra Deactivated Glass Liner Single Taper for Splitless Injection	2	6.5	78.5	5	N6502030
	Ultra Deactivated Single Taper Splitless Liner	4	6.5	78.5	5	N6502031
	Ultra Deactivated Single Taper Inlet Liner with Wool for Splitless Inlets	4	6.5	78.5	5	N6502035

Split/Splitless Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	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 Deactivated Glass Liners with Deactivated Wool. Quartz wool is used to fully vaporize the sample	4	6.3	78.5	5	N6502043

PSS Injector Liners for all Clarus GC Systems

Programmed Temperature Split/Splitless (PSS) Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Quartz Liner for Splitless Operation – Excellent liner for low volume analyzes	1	4	86.2	1	N6121006
	Quartz Liner for Split Operation – Standard injector liner for routine applications	2	4	86.2	1	N6121004
	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	N6502001
	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	N6502002
	Zero Dilution Outer Liner – Use in conjunction with N1011446	2.8	4	83	1	N1011447
	Zero Dilution Inner Liner – Use in conjunction with N1011447		2	73	1	N1011446
	On-column Glass Liner	2.4	4	86.2	1	N6101539
	Liner/Hour Glass for POC Injector	2.4	4	19.05	1	N6101703
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	1	N6121008
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	5	N6121009
	Deactivated Glass Liners with Deactivated Wool. Narrow bore and quartz wool increase volatilization and reproducibility	2	4	86.2	5	N9306232
	Splitless Deactivated Glass Liners	1.25	4	86.2	5	N9306237

Packed Column Injector liners for all Clarus GC Models

Packed Column Injector Liners

Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
Glass Liner	3	6	112	1	N6101048
Quartz Liner	3	6	112	1	N6121000

Ferrules

Capillary Column Ferrules*

Different materials and configurations of ferrules are available, the choice of which depends on your application or use within the GC instrument.

Column ID (mm)	Ferrule ID (mm)
≤ 0.25	0.4
0.32	0.5
0.53	0.8

Graphite

Ferrule of choice for high-temperature applications up to 450 °C. Graphite seals easily and does not stick to glass columns. Suitable for use with FID, TCD and ECD detectors.

Graphite/Vespel®

15% graphite/85% polyimide ferrules are recommended for use with GC/MS systems. The upper temperature limit is 400 °C.







Short Ferrules

For use with the new capillary injector design on the Clarus 590 and 690 systems. These short ferrules are not compatible with the older Clarus instruments.

Standard Ferrules

PerkinElmer standard ferrules are used in for connecting columns to the detectors on all GC models. They are suitable for use on the older Clarus capillary injectors (480, 580, 680 and prior instruments).

Short Ferrules for use with the Clarus 590/690 Capillary Injector

Size	For use with Column ID (mm)	Ferrule ID (mm)	Graphite Part No.	Graphite/Vespel Part No.
1/16 in.	≤0.25	0.4	09200785	09200685
				
1/16 in.	0.32	0.5**	09200785	09200686
				
1/16 in.	0.53	0.8	09200787	09200687
				
1/16 in.	0.32 (Two hole ferrule)	0.5	–	09200788

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

Standard Ferrules for use with the Clarus 480/580/680 Capillary Injector

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

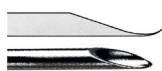
Standard Ferrules for use with detectors – all Clarus models

Size	For use with Column ID (mm)	Ferrule ID (mm)	Graphite Part No.	Graphite/Vespel Part No.
1/16 in.	≤0.25	0.4		09920104
				
1/16 in.	0.32	0.5	09903700	09920105
				
1/16 in.	0.53	0.8	09920141	09920107
				
1/8 in.	0.53	1.0	09903394	
				
1/8 in.	≤0.32	0.5	09903981	

Autosampler and Manual Syringes

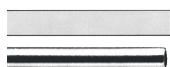
Point Style 2

This is a general purpose point style designed for septum penetration in all chromatographic techniques. The needle has a 22° bevel to minimize coring and needle plugging.



Point Style 3

Needle has a 90° bevel. This point style is recommended when the syringe is used for accurate pipetting of liquids. Excellent for mixing standards of very small volume.



GC 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 analyzes, 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	N6101760
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle (ships with instrument)	N6101390
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (Pkg. 5 syringes)	N6103240
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (Pkg. 10 syringes)	N6103241
5 µL Syringe, Metal Plunger 0.63 mm OD Needle	N6101251
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	N6101253
5 µL On-column Syringe Metal Plunger 0.47 mm OD Needle	N6101380
NEW 5 µL, Syringe, PTFE-tipped Metal Plunger 0.47 mm OD Needle	N9308975
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	N6101252
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 5 syringes)	N6103242
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (Pkg. 10 syringes)	N6103243



New Blue Barrel color design for enhanced sample volume verification (packs of 5 and 10 syringes)

Syringes – Gas Tight

Syringe Capacity	Fixed Needle (N) Part No.	Removable Needle (RN) Part No.
10 µL	N9302240	N9302241
25 µL	N9302242	N9302243
50 µL	N9302244	N9302245
100 µL	N9302247	
250 µL	N9302250	N9302251
500 µL	N9302253	N9302254
1.0 mL	N9302256	N9302257
2.5 mL	N9302259	
5.0 mL	N9302262	
10 mL	N9302265	N9302266

GC Manual Syringes

Features and Benefits

- All PerkinElmer injectors have been tested and optimized for use with a 7 cm needle
- A 7 cm needle is critical to be sure your sample is deposited in the optimal zone

Syringe Capacity	Gauge	Length	Pkg.	Point Style	Part No.
Removable Needle Syringes (RN)					
10 µL			1	#2	N9302210
25 µL			1	#2	N9302211
50 µL			1	#2	N9302212
100 µL			1	#2	N9302213
Replacement Needles for RN Syringes					
10 µL			1	#2	N9302222
25/50/100 µL	225	2 in.	3	#2	N9302224
250 µL	225	2 in.	3	#2	N9302226
Fixed Needle Syringes					
10 µL ³			1	#2	00230523
10 µL ²			6	#2	N9302230
25 µL			1	#2	N9302202
25 µL			1	#3	09904823
50 µL			1	#2	N9302203
50 µL			1	#3	09904941

² Savings based on one-piece price. Savings of 20% reflected in price shown.
³ Standard fitted with 7 cm needle.

Marathon Filament



The Marathon™ Filament is a revolutionary, patent-pending technology developed exclusively by PerkinElmer, delivering long life even under the most difficult chromatography conditions.

After lengthy performance testing and filament research, the new Marathon Filament has been engineered to provide exceptional long life and withstand difficult chromatography conditions.

It has high resistance to demanding injections such as Headspace or purge and trap and has stood up to challenging applications such as flame-retardant analysis.

The Marathon Filament is a direct replacement of the previous rhenium filament – no system changes required.

Features and Benefits

- Long life even under the most difficult chromatography conditions
- Unique white surface engineered for maximum durability and optimum performance
- Now included with all new Clarus® GC/MS systems
- Backward compatible with all units using rhenium filaments
- Works with both electron and chemical ionization sources

Description

Marathon Filament for PerkinElmer GC/MS Systems

Part No.

N6470012

SMARTsource with Marathon Filament for Clarus SQ 8 GC/MS Systems

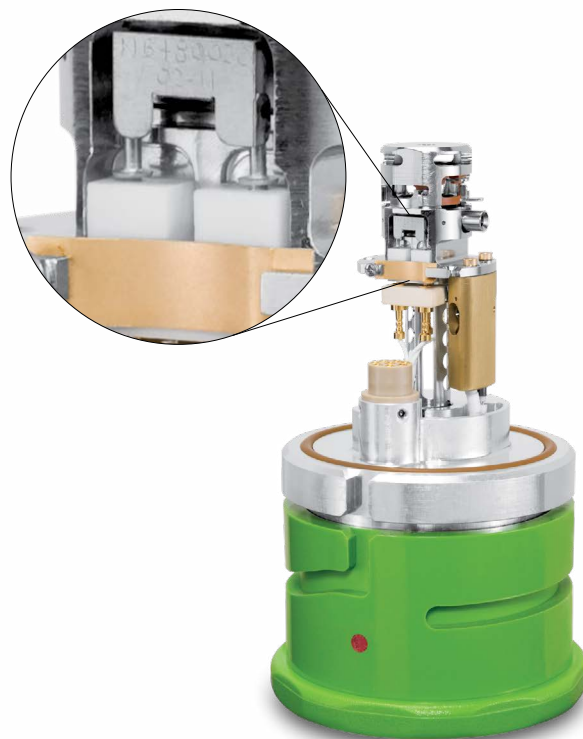
Capable of both EI and CI ionization, the SMARTsource™ (Simplified Maintenance And Removal Technology) on the Clarus® SQ 8 GC/MS has been designed for ultimate simplicity, flexibility and productivity. Switching sources can be done in a matter of seconds by simply twisting and pulling – no tools required, no wires to disconnect. Cleaning the source is equally as easy and can be performed by the user. So even if you're running tough matrices, you won't be slowed down by time-consuming expensive source cleanings and replacements.

Fewer Parts, Greater Ease

With very few parts, the SMARTsource is exceptionally robust and easy to maintain. Each component is clearly marked for simple reassembly, and reconfiguring between EI and CI can even be performed in less than 3 minutes with a quick-conversion kit. Since the source is removed from the front of the Clarus SQ 8, the analyzing quadrupole is never exposed, minimizing the risk of contamination to ensure more reliable data.



Take the guesswork out of setting your column depth. Our Handle Assembly allows for precise alignment of the column within the SMARTsource every time.



Features and Benefits

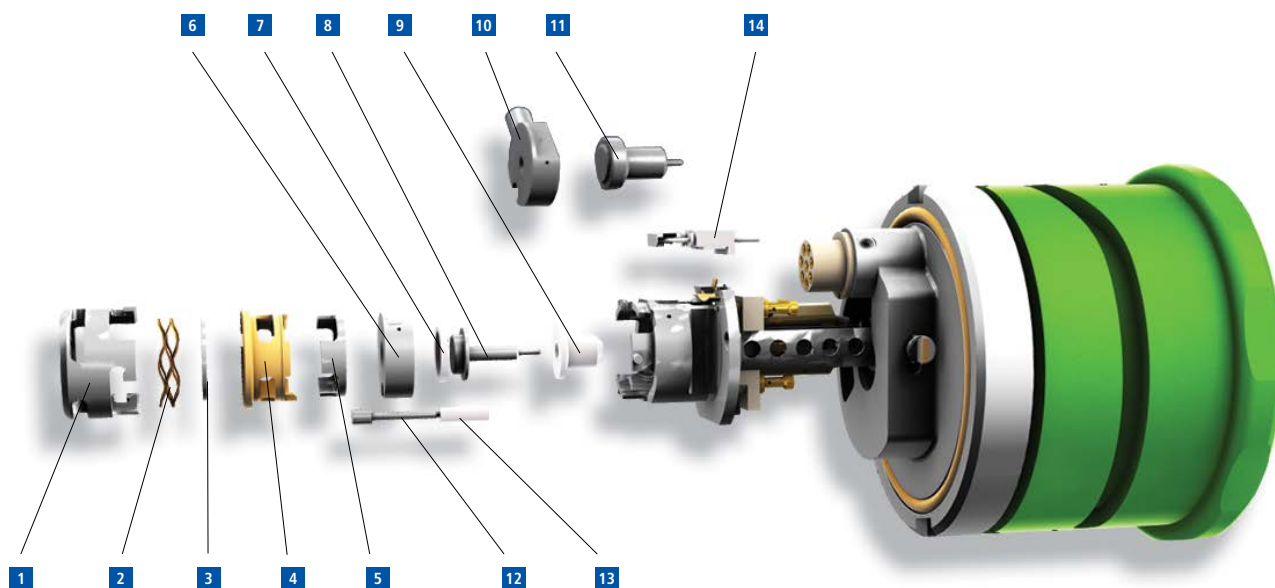
- 12 parts make up EI source
- SMARTsource rebuilt in minutes
- Remove SMARTsource with the twist of a wrist
- Marathon filament has a long life even under the most difficult chromatography conditions and is engineered for maximum durability and optimum performance

Handle Assembly (Source Blank and Sight)

Description	Part No.
Handle Assembly (Source Blank and Sight)	N6480380
Replacement Protective Cover	N6482024

SMARTsource Maintenance Kits

Description	Part No.
SQ8 Maintenance Kit Tool kit needed to maintain source	N6480360
SQ8 Deluxe Polishing Kit (120 Volt) Kit for polishing cleanable source parts	N6480361
SQ8 Deluxe Polishing Kit (240 Volt)	N6480362



SMARTsource Replacement Parts

Description	Part No.
1 Source Lens #3	N6480149
2 Source Spring	N6480151
3 Source Lens #2	N6480148
4 Lens Insulator	N6480153
5 Source Lens #1	N6480147
6 El Ion Volume	N6480144
7 Insulator (Ion Volume)	N6480145
8 Repeller	N6480140
9 Insulator (Repeller)	N6480141
10 Cl Ion Volume	N6480146
11 Cl Ion Volume Disc	N6480154
12 Trap	N6480142
13 Insulator (Trap)	N6480143
14 Marathon Filament	N6470012

SMARTsource Kits

Description	Part No.
Complete EI Source Consists of a fully assembled EI Source, ready to install	N6480132
Complete CI Source Consists of a fully assembled CI Source, ready to install	N6480130
Insulator Replacement Kit (Numbers 2, 4, 7, 9, 13)	N6480080
EI Optics Replacement Kit (Numbers 1, 3, 5, 6, 8, 12)	N6480081
CI Optics Replacement Kit (Numbers 1, 3, 5, 8, 10, 12)	N6480082

Clarus 480/580/680 Consumables

With more than 50 years' experience in GC, the PerkinElmer family of Clarus® 480/580/680 GC instruments can be depended upon to meet the most demanding performance and throughput needs for today's analytical, process monitoring and quality control facilities.



Capillary Injector with PPC Kit

Kit includes split/splitless injector with programmable pneumatic control for carrier gas, split vent, heater, sensor, and heater block. The AutoSystem XL must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V	N6120138
230 V	N6120139

Complete Capillary Injector Add-On Kits

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. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V Clarus	N6520012
230 V Clarus	N6520013

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. 2-hole ferrule (**N9306097**). For manual gas control. Not compatible with Clarus 590/690 capillary injector.

Voltage	Part No.
120 V	N6120050

Split/Splitless Injector Starter Kit

Includes: 2 mm ID quartz liner, 4 mm ID quartz liner, silicone O-Rings (10), green septa (50), 0.5 mm graphite ferrules (10), 0.8 mm graphite ferrules (10), 1/16 in. stainless steel nuts (5), untreated quartz wool, packing rod, and wafer scribes (10). Not compatible with Clarus 590 and 690 models.

Description	Part No.
Split/Splitless Injector Starter Kit for Manual Gas Control	N6120101

Merlin MicroSeal Septum for 480/580/680 Systems

The Merlin MicroSeal™ septa is a unique replacement septa employing a two-step sealing system and an advanced elastomer material. It is ideally suited to SPME applications.



Because the syringe needle does not pierce the septa, there is no debris and ghost peaks are greatly reduced. The MicroSeal septa also reduces the incidence of bent syringe needles and liner contamination. Usable in either manual or autosampler applications, this septa can improve your productivity and run reliability. Designed to be used with 23 gauge straight needle syringes. Pressure ranges from 4 to 100 psi and injection port temperatures up to 325 °C. This is not compatible with Clarus 690/590 GCs.

Description	Part No.
Merlin MicroSeal Septum Kit Includes: Injector Port Adapter, 2 Septa and 1 Nut	N9303344
Merlin MicroSeal Septum	N9303345

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	N6550167
230 V	N6550168

Clarus 480/580/680 FID Add-On Kits

Auto-Ignite FID with PPC Add-On Kit*

Kit includes: detector assembly with heater and sensor, heater block, igniter, programmable pneumatics, and controls for detector combustion gases. Requires, but does not include, amplifier (**N6120162**) and AutoSystem XL firmware revision 3.3 or higher. The AutoSystem XL must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	N6120167
230 V*	N6120168

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details.

Auto-Ignite FID Add-On Kit (Manual Pneumatics)

Kit includes: detector assembly with heater and sensor, heater block, igniter, hydrogen pressure regulator, and needle valve. Requires, but does not include, amplifier (**N6120162**). Requires AutoSystem XL to have firmware revision 3.3 or higher.

Voltage	Part No.
120 V Clarus*	N6520018
230 V Clarus*	N6520019

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details.

FID Amplifier

Required for use with FID Detector Add-On Kit*.

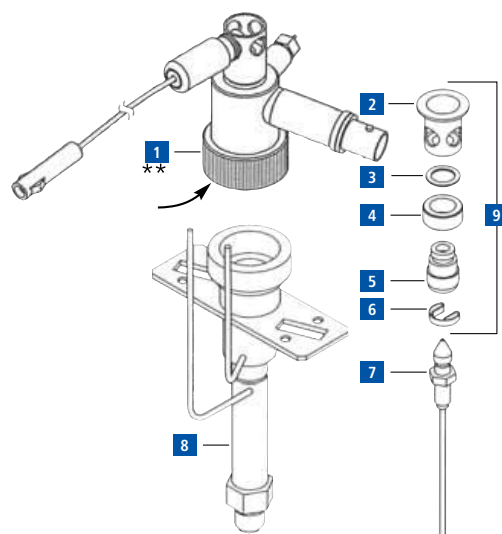
Description	Part No.
FID Amplifier	N6109364

* This is not required for the Clarus 590/690 FID add-on kits.

Auto-Ignite FID Replacement Parts*

	Description	Part No.
1	Collector Head Assembly Silicone Rubber O-Ring* (not shown)	N6100357 09902143
2	Polarizer Nozzle	N6103167
3	Nozzle Insulator	09907827
4	Nozzle Collector	N6101085
5	Body Assembly	N6103175
6	FID Jet Contact/Spring	N6001204
7	Jet Assembly*	N6100361
8	FID Body	N6100364
9	Nozzle Assembly	N6100430

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details.



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

Clarus 480/580/680 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 (White Color)	N6103151
Eraser Brush-Pencil	09923078
Jet Assembly*	N6100194
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
Septa, low bleed (pkg. 50)	N9302972
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

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details.

Clarus 480/580/680 Catalytic Reactor Accessory

Auto-Ignite FID with PPC Add-On Kit

The catalytic reactor converts CO and CO₂ 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 FID Catalytic Reactor Accessory

Description	Part No.
External Igniter FID Catalytic Reactor Accessory*	N6120070

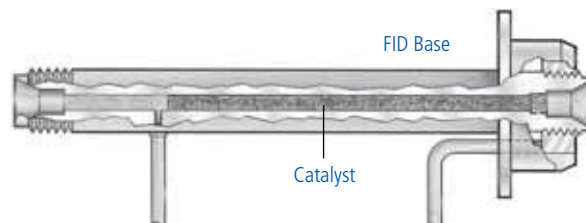
Auto-Ignite FID Catalytic Reactor Accessory

Description	Part No.
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details.

Catalytic Reactor Replacement Parts

Description	Part No.
Catalyst	N9302698
Jet Assembly	N6100194



Miscellaneous Accessories

External Ignite Nozzle Replacement Tool

For removing nozzle from External Ignite FID body.

Description	Part No.
External Ignite Nozzle Replacement Tool	N6103188

Hydrogen Regulator Replacement Kit

Description	Part No.
Hydrogen Regulator Replacement Kit	N6100289

Hydrogen/Air Replacement Needle Valve

Description	Part No.
Hydrogen/Air Replacement Needle Valve	N6101412

Igniter Assembly

Complete replacement igniter assembly with glow plug.

Description	Part No.
Igniter Assembly	N6100016

Replacement Glow Plug for External Ignite FID

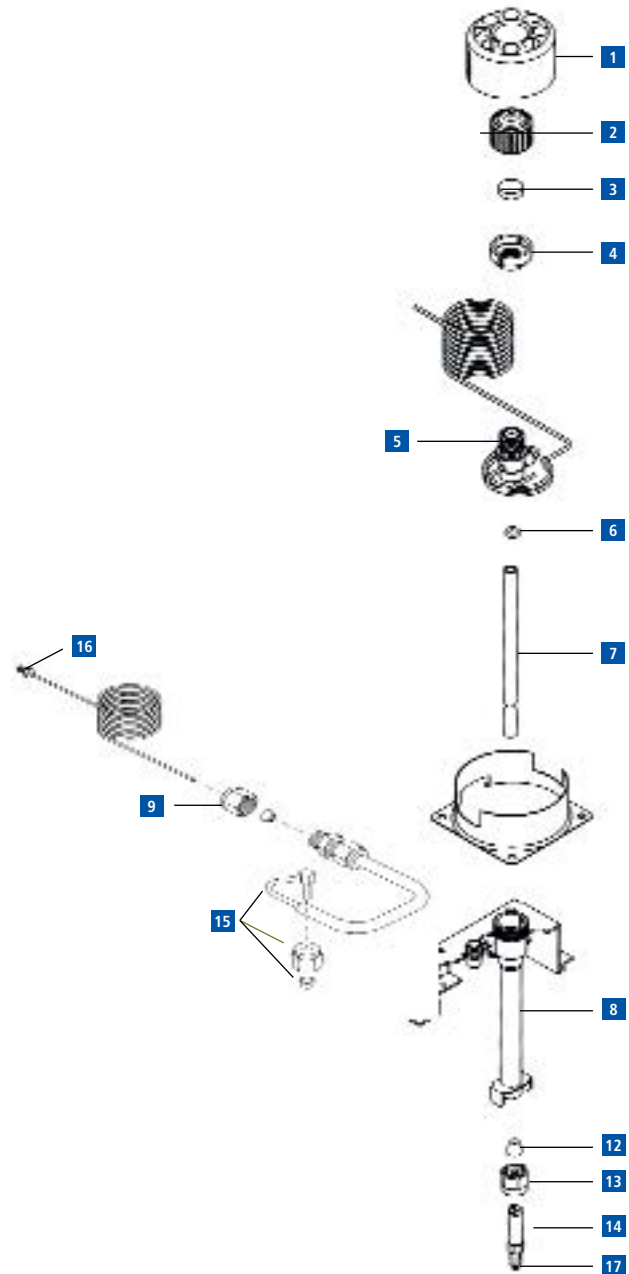
Description	Part No.
Replacement Glow Plug for External Ignite FID	00091279

FID Flow Measurement Adapter

Description	Part No.
FID Flow Measurement Adapter	N6101345

Clarus 480/580/680 Capillary Injector Replacement Parts*

Description	Part No.
1 Injector Cover	N6101482
2 Septum Cap	N6100153
3 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
4 Injector Top Nut	N6101358
5 Injector Head	N6100158
O-Ring, Silicone for Glass Liner (pkg. 10) Maximum injector temperature 250 °C	N6101374
O-Ring, Graphite for Glass Liner (pkg. 5) Maximum injector temperature 450 °C	N6101378
6 O-Ring, Kalrez® for Glass Liner (pkg. 1) Maximum injector temperature 450 °C	N9302782
O-Ring, Viton® for Glass Liner (pkg. 10) Maximum injector temperature 300 °C, recommended for use with Mass Spec. ships with instrument	N9302783
Quartz Liner (2 mm) for Splitless Operation	N6121002
Quartz Liner (4 mm) for Split Operation or Large Volume Splitless Injection	N6121001
Glass Liner (2 mm) for Splitless Operation	N6101372
Glass Liner (4 mm) for Split Operation	N6101052
7 Deactivated Liner for Splitless Operation 2 mm, packed with wool. (pkg. 5)	N6121021
Deactivated Liner for Split Operation 4 mm, packed with wool. (pkg. 5)	N6121020
Deactivated Uniliner 4 mm, packed with wool. (pkg. 5)	N6121022
8 Injector Body	N6100047
9 1/8 in. Swagelok™ Nut Brass (pkg. 5)	N9300056
10 Restrictor**	N6101034
11 1/8 in. Graphite/Vespel Ferrule (pkg. 10)*	09920301
12 1/4 in. Graphite Ferrule (pkg. 10)	09920140
1/4 in. Graphite/Vespel Ferrule (pkg. 10)	09903739
13 1/4 in. Swagelok Nut, Stainless Steel (pkg. 5)	N9300055
14 Injector Adapter Cap Assembly	N6100562
15 Charcoal Trap	N6100275
Charcoal Trap for PPC Version*	N6100331
16 Split Vent Tube	N6100159
17 Column Nut 1/16 in. Long length for reversed ferrule (pkg. 5)	09903392



* Not suitable for Clarus 590 and 690 models.

** Not shown.

Suitable for all older models to Clarus GC instruments: 480/580/680 and systems prior.

Clarus 590/690 Consumables

Sensitive, high-capacity, high-throughput GC systems delivering the power and functionality needed to meet your analytical goals. A robust autosampler delivers easy access to two injector ports, while the Clarus 690's patented high-performance oven delivers the fastest heat-up and cool-down of any oven in the business.



Description			Part No.
GC/MS PSS Injector Starter Kit			N6100447
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	N6101390
Vial Locator (dongle)		2	N6101182
PSS Injector Viton O-Rings (300 °C)	10	1	N6101747
PSS Injector Kalrez® O-Rings (450 °C)	1	1	09921004
PSS Split/Splitless Injector, 2 mm, no wool		1	N6121004
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	09920104
PerkinElmer Green Septa (50 pieces)		1	N6621028
Marathon Filament		1	N6470012
Aluminum Oxide Powder (3 oz.)		1	04190197

Description			Part No.
GC/MS CAP Injector Starter Kit for Clarus 680, 580, 480			N6100448*
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	N6101390
Vial Locator (Dongle)		2	N6101182
CAP Injector Viton O-Rings (300 °C)		10	N9302783
CAP Injector Kalrez® O-Rings (450 °C)		10	N9302782
CAP Split/Splitless Injector, 4 mm, no wool		2	N6121002
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	09920104
PerkinElmer Green Septa (50 pieces)		1	N6621028
Marathon Filament		1	N6470012
Aluminum Oxide Powder (3 oz.)		1	04190197

* **N6100448** Not compatible with Clarus 590 and 690 models. Refer to the Clarus 590/690 consumable reference guide for more details.

Clarus 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. 10) Maximum Injector Temperature 300 °C, Recommended for use with Mass Spec.	09200714
	O-Ring, Kalrez® for Glass Liner (Pkg. 1) Maximum Injector Temperature 450 °C	09200725
	Ultra-deactivated Straight Inlet Liner with wool, 4.0 mm ID, for Split/Splitless Inlets, 5 pack (ships with instrument) See page 111 for a full listing of liners	N6502036
5	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 113 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
	Split Vent Trap Connecting Tube – 690, A Position	N6552091
Not shown	Split Vent Trap Connecting Tube – 690, B Position	N6552092
	Split Vent Trap Connecting Tube – 590, A Position	N6552093
	Split Vent Trap Connecting Tube – 590, B Position	N6552094
13	Capillary Column Nut	N6552084

Clarus 590/690 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	N6552091
Split Vent Trap Connecting Tube – 690, B Position	N6552092
Split Vent Trap Connecting Tube – 590, A Position	N6552093
Split Vent Trap Connecting Tube – 590, B Position	N6552094

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	N6550138
240 V	N6550139

Capillary Injector for Manual Pneumatics

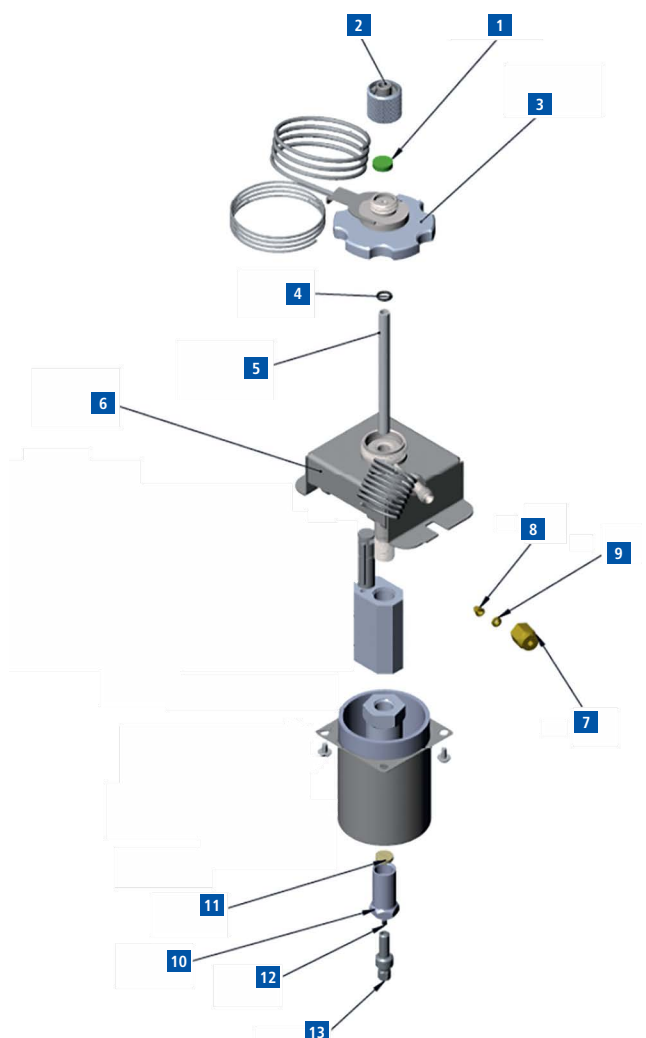
Kit includes split/splitless injector in module with heater and sensor, 0 – 60 psi pressure regulator, and transducer for pressure readout. For manual gas control.

Voltage	Part No.
120 V Clarus	N6550012
230 V Clarus	N6550013

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	N6550101

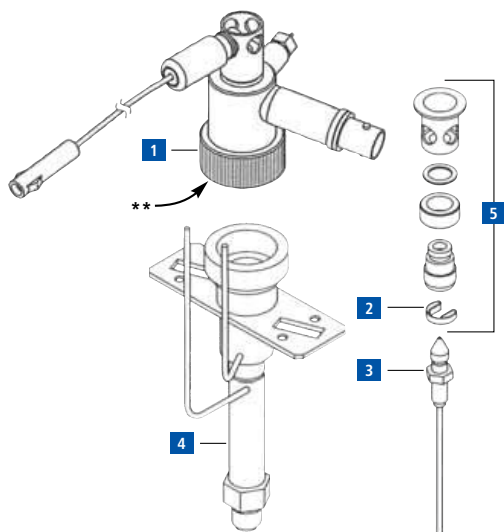


GC/MS 590/690 Capillary Injector Consumable Kit

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 (300 °C)	10 1 09200714
Kalrez® 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

Auto-Ignite Wide Range FID Replacement Parts

Description	Part No.
1 Collector Head Assembly which includes Silicone Rubber O-Ring** (not shown)	N6550077 09902143
2 FID Jet Contact/Spring (included in N6550072)	N6001204
3 Jet Assembly (0.28 mm jet, fitted as standard) Jet Assembly (0.71 mm jet)	N6550080 N6550083
4 FID Body	N6550082
5 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 (White Color)	N6103151
Eraser Brush-Pencil	09923078
Jet Assembly (0.28 mm jet, fitted as standard) Jet Assembly (0.71 mm jet)	N6550080 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 CO₂ 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.

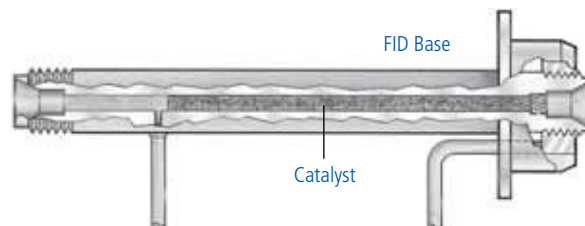
External Igniter Wide Range FID Catalytic Reactor Accessory (For Methanizer Kit)*

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



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

Swafer Micro-Channel Wafer Technology

PerkinElmer's Swafer™ micro-channel wafer technology is an innovative and user-friendly approach for flowswitching and splitting applications. It delivers unparalleled hardware and application flexibility, expanding the capabilities of capillary gas chromatography (GC).

Features and Benefits

- Allows you to tackle difficult or otherwise impossible separations, delivering richer sample information which was previously unattainable
- User-friendly design and user-defined oven position allow easy setup and configuration changes, without requiring service intervention
- Complete independence of the column from injectors or detectors lets you combine injection techniques (headspace, thermal desorption, liquid, etc.), based on sample requirements
- 15 user-interchangeable configurations deliver over 18 possible modes of operation for unparalleled application flexibility
- Can be used on any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC)
- Vent unwanted solvent or other large peak from chromatogram
- Tweak the column polarity with serial column for difficult separations



Swafer Kits for Clarus GC Systems

Description	Part No.
D-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware user guides, and the D-Swafer	N6520273
S-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware, user guides, and the S-Swafer	N6520272

Swafer Kits and Accessories for Existing Clarus GC Systems

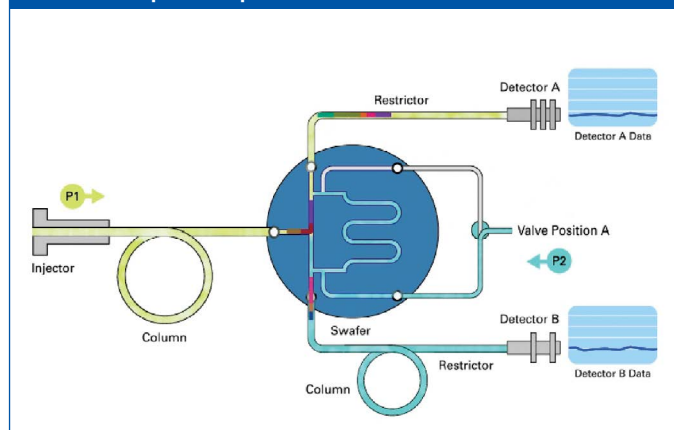
Description	Part No.
Micro-Channel Kit for Existing Clarus 680/600/580/500 GC with PPC. Includes all hardware required to install a Swafer. The Swafer and installation are not included and must be purchased separately	N6520270
Micro-Channel Kit for Existing Clarus 680/600/580/500 GCs with PreVent currently installed. If PreVent is already included in the GC configuration, this hardware kit provides the additional parts required to install a Swafer. The Swafer and installation are not included and must be purchased separately	N6520271
D-Swafer Dean's Switch (Swafer only)	N9306251
S-Swafer Splitter (Swafer only)	N9306262

How Can the Swafer Help You?

Enhanced Sample Information		
Solvent venting	Vent unwanted solvent or other large peak from chromatogram	D-Swafer S-Swafer
Detector switching	Switch between your detectors of choice anytime during the run or between injections	D-Swafer
Column switching	Make your GC more flexible by choosing which column should be used to chromatograph the injected sample	D-Swafer
Heartcutting	Cut your chromatogram and analyze the cut on a different column for a better separation	D-Swafer
Polarity tuning	Tweak the column polarity with serial column for difficult separations	D-Swafer S-Swafer
Column selection	Better utilize large and expensive detectors by choosing which of the two columns to monitor	D-Swafer
Carrier-gas swapping	Use a different carrier gas in the injector or sampling system from that used for the chromatography	D-Swafer
Peak attenuation	Analyze a wide dynamic range by diluting portions of your chromatography	D-Swafer
Splitting	Split your chromatography between up to four channels (detectors, sniffer ports, etc.)	S-Swafer

Throughput and Maintenance		
Column backflushing	Remove unwanted compounds from the column after the analytes have eluted	D-Swafer S-Swafer
MS isolation	Perform your MS, column and inlet maintenance without venting for less downtime	D-Swafer S-Swafer
Retention-gap purging	Remove large amounts of solvent with cold on-column injection	D-Swafer
Inlet selection	Automate your inlet choices (headspace, thermal desorption, liquid autosampler, etc.) between injections	D-Swafer
Injector maintenance or enhanced large volume injection	Enable injector septa or liner exchange while the system is still active Prevent solvent vapor from entering column and detector during injector purging	D-Swafer S-Swafer

Heartcutting (D-Swafer) allows separation of selected peaks within a complex sample matrix.



Swafer can be installed in any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC).



TurboMatrix 40 Headspace Trap

Sample Head Assembly Replacement Parts

Description	Part No.
Platinum/Iridium Needle, Wide-bore	B0144169
Platinum/Iridium Needle, Small-bore	B0500959
Platinum/Iridium Needle, Jet	B0510364
1 Silcosteel Needle, for Headspace Trap Only	N6700130
Stainless Steel Needle, Wide-bore	B0131385
Stainless Steel Needle, Small-bore	B0500987
Stainless Steel Needle, Jet (ships with instrument)	B4000011
2 Needle Seal Assembly (without O-Rings)	B0500833
3 O-Ring for Needle Seal Assembly (pkg. 10)	B0198110
4 Vespel Ferrule 1/16 in. (pkg. 10)	09920127
5 Male Nut 1/16 in.	N9302832
6 GLT Adapter Tube	B0503956
GLT Adapter Tube, Silcosteel	N6700113
7 Graphite/Vespel Ferrule 1/16 in. x 0.4 mm For use with 0.25 mm ID Transfer Line (pkg. 10)	09920104
Graphite/Vespel Ferrule 1/16 in. x 0.5 mm For use with 0.32 mm ID Transfer Line (pkg. 10)	09920105
8 Nut 1/16 in. Swagelok	N9300059
0.18 mm ID x 5 m Length	N9301354
9 Fused-Silica Capillary Transfer Line: 0.25 mm ID x 5 m Length	N9301356
0.32 mm ID x 5 m Length	N9301357



Solid Glass Blocking Trap

Description	Part No.
Block for Use in Standard Headspace Mode	N6701170

Sample Trays

For use on the Mid-Range or High-Capacity headspace sampler.

Description	Part No.
TurboMatrix 40 Mid-Range Sample Tray	M0413592
TurboMatrix 110 High-Capacity Sample Tray	M0413593

Transfer Lines

Description	Tubing ID (mm)	Length	Part No.
Siltek Deactivated Fused Silica	0.25	5 m	N9316607
Siltek Deactivated Fused Silica	0.32	5 m	N9316608

Miscellaneous Accessories

Description	Part No.
Gas Chromatography – Theory and Practice, Static Headspace Book by L. Ettre and B. Kolb	N1011210

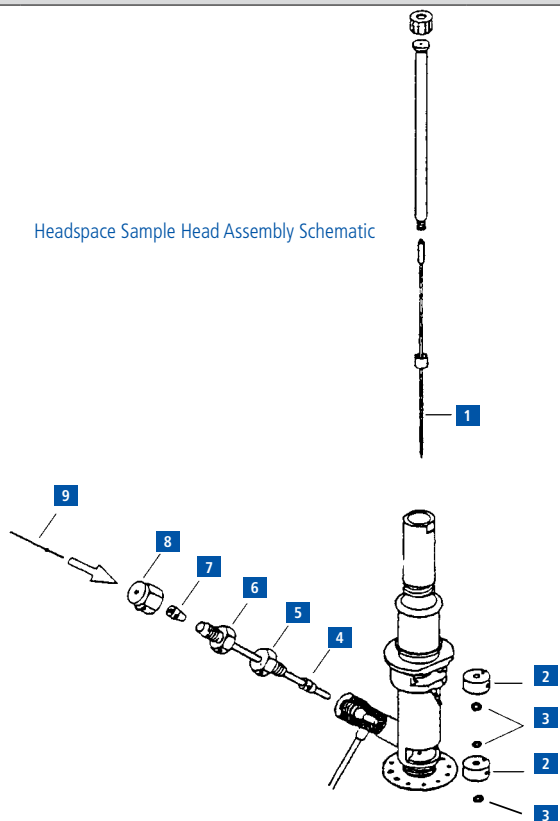
Cold Trap Options

Headspace Trap instruments only.

Description	Part No.
TurboMatrix HS Trap Cold Trap Tube (Carbopack C)	N6200150
TurboMatrix HS Trap Air Monitoring Trap*	M0413628

* Trap comes standard with instrument.

Headspace Sample Head Assembly Schematic



Packed Column Injector for All Clarus GC Models

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*	N6120007
230 V*	N6120023

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*	N6120136
230 V*	N6120137

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	N6520010
230 V* Clarus	N6520011

Packed Column Injector Kit AutoSystem XL and Clarus

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

Voltage	Part No.
120 V*	N6120071
230 V*	N6120072

Packed Column Injector Starter Kit

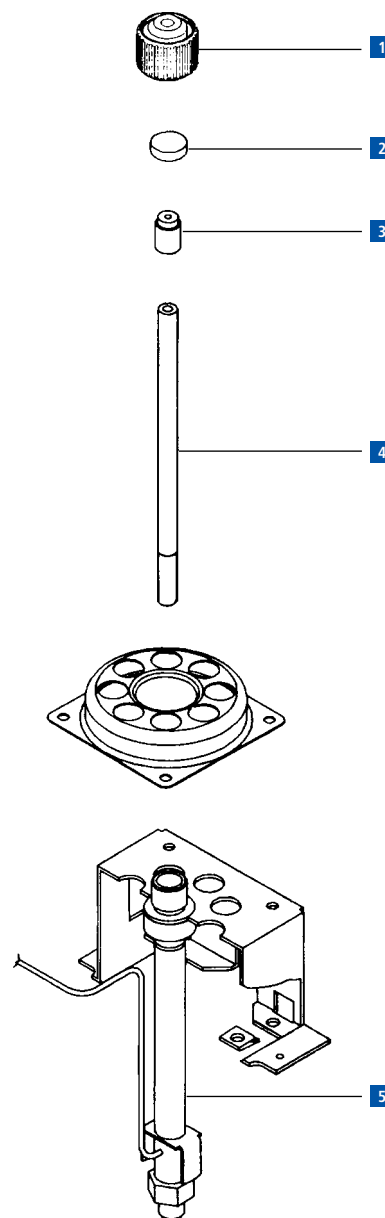
Includes glass liner, needle guide, green septa (50), untreated quartz wool, and packing rod.

Description	Part No.
Packed Column Injector Starter Kit	N6120100

*Service installation suggested.

Packed Injector Replacement Parts

	Description	Part No.
1	Septum Cap	N6100153
2	PerkinElmer Green Injection Septum (pkg. 50)	N6621028
3	Needle Guide	N6101050
4	Glass Liner (6 mm OD, 3 mm ID, 112 mm Length)	N6101048
	Quartz Liner (6 mm OD, 3 mm ID, 112 mm Length)	N6121000
5	Packed Injector Assembly	N6100048



PSS Spares for All Clarus GC Models

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*	N6550053
230 V*	N6550054

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

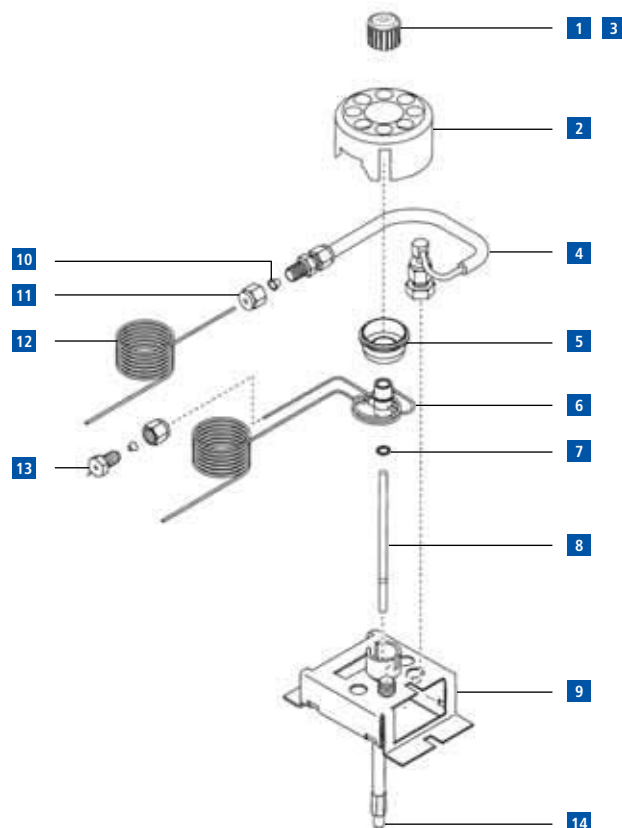
Used together as set.

Voltage	Part No.
Inner Liner	N1011446
Outer Liner	N1011447

* Service installation suggested.

PSS Replacement Parts

Description	Part No.
1 Septum Cap	N6100153
2 Injector Cover	N6101482
3 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
4 Trap, Charcoal – non PPC version	N6100275
PPC version (not shown)	
5 Nut	N6101705
6 Septum Purge	N6100260
O-Ring Viton (pkg. 10) max temp 300 °C, recommended for use with mass spec. Shipped with instrument	N6101747
7 O-Ring Kalrez® (pkg. 1) max temp. 450 °C	09921004
O-Ring Graphite (pkg. 5) max temp. 450 °C	N6101751
Quartz Liner, 2 mm Split Mode Shipped with instrument.	N6121004
8 Quartz Liner, 1 mm Splitless Mode	N6121006
On-column liner	N6101539
9 PSS Body Braze Assembly	N6550025
10 Ferrule 1/8 in. x 1/16 in. (pkg. 10)	09920301
11 Nut 1/8 in.	09903128
12 Split Vent Line	N6100159
13 Purge Restrictor	N6101034
14 Nut	09903392



POC Spares for All Clarus GC Models

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 C60 (e.g., polywaxes). The POC utilizes flow control, producing the best recovery out to C100 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*	N6120076
230 V*	N6120077

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*	N6120082
230 V*	N6120083

POC Injector with PPC Add-On Kit

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The AutoSystem XL or 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*	N6120142
230 V*	N6120143

POC Injector Starter Kit

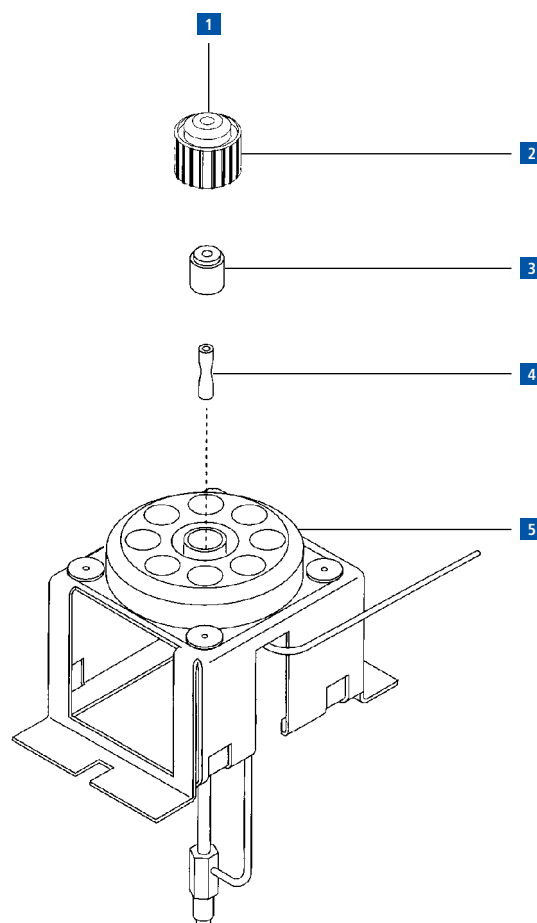
Includes: needle guides (5), universal connectors (5), 0.53 mm ID deactivated fused silica (5 m), 1/16 in. stainless steel nuts (5), 0.8 mm graphite ferrules (10), green septa (50), and wafer scribes (10).

Voltage	Part No.
POC Injector Starter Kit	N6120098

* Service installation suggested.

POC Replacement Parts

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



FPD Spares for All Clarus GC Models

The FPD is a highly sensitive and selective detector for both sulfur and phosphorus compounds. It is especially suitable for environmental monitoring of H₂S 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/TCD, 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. 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. AutoSystem operator's manual (09938559) revision E or higher required.

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

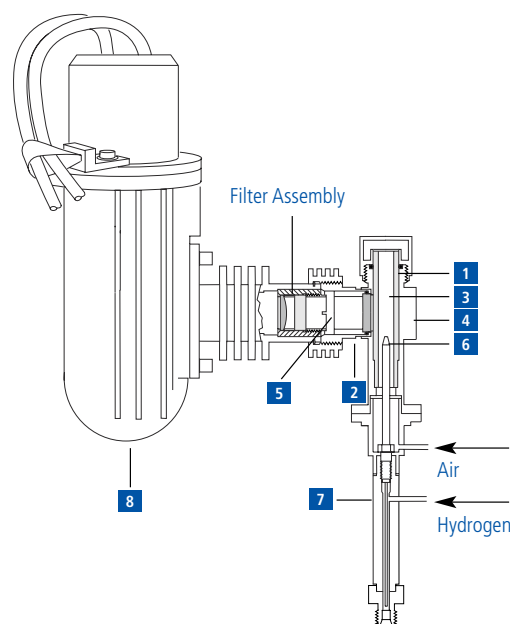
FPD Amplifier

Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (09938559) revision E or higher required.

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 Assembly	N6550055
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). AutoSystem XL 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.
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

TCD for All Clarus GC Models

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	N6520022
230 V Clarus	N6520023

TCD Amplifier

Description	Part No.
TCD Amplifier	N6120015

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	N6120124
230 V	N6120125

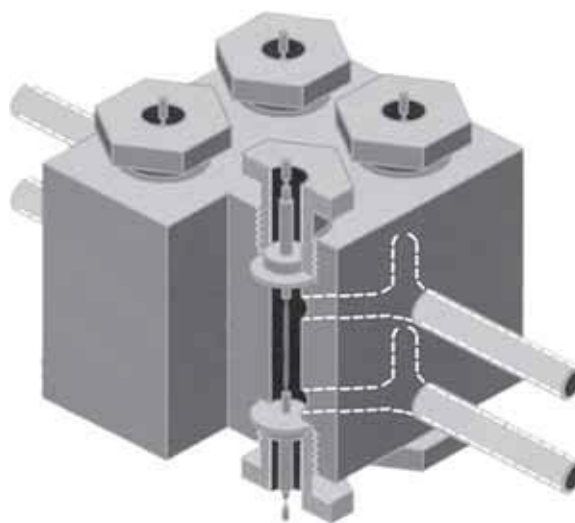
TCD with PPC Makeup Gas Kit

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	N6120150

Column Adapter

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



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	N6120006

TCD Detector Makeup Gas Kit (Manual Pneumatics)

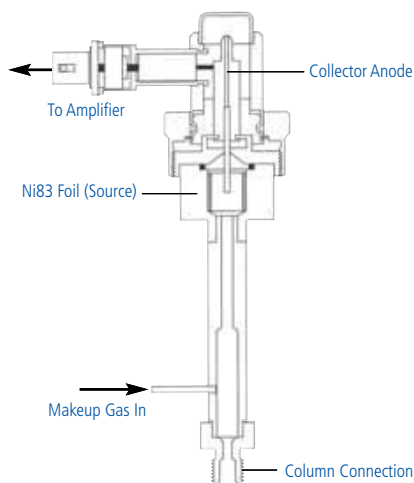
For use with TCD (at low flow rates). Required when using 0.25 mm ID and recommended when using 0.32 mm ID capillary columns. Kit includes 1 m of 1/16 in. tubing to connect to gas supply, graphite/vespel ferrules, manual pneumatics, and installation instructions.

Description	Part No.
TCD Detector Makeup Gas Kit (Manual Pneumatics)	N6120080

ECD Spares for All Clarus GC Models

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 AutoSystem Series and 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.
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 AutoSystem XL or 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

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 Spares for All Clarus GC Models

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.

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 AutoSystem XL or 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
230 V	N6120127

Column Adapter

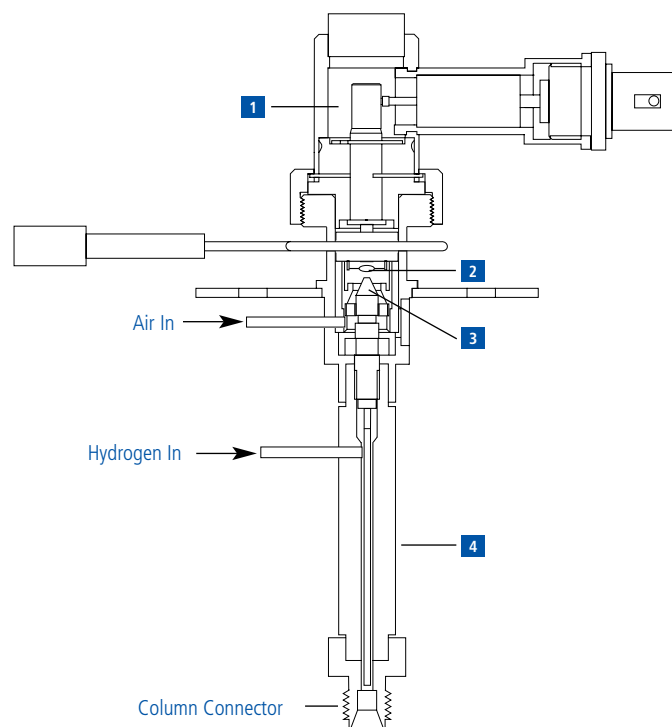
1/4 in. Packed Column Adapter

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)	N6120093
Single pkg.	N6120092
3 Jet Assembly	N6100038
4 NPD Body	N6100228



PID Spares for All Clarus GC Models

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 an AutoSystem 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. AutoSystem operator's manual (**09908559**) is required if not revision F or higher.

Voltage	Part No.
120 V Clarus	N6520026

PID Amplifier

Required for use with PID Add-On Kit.

Description	Part No.
PID Amplifier	N6120061

PID Lamp Power Supply

Required for use with PID Add-On Kit.

Description	Part No.
PID Lamp Power Supply	N6120062

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 kit (**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.

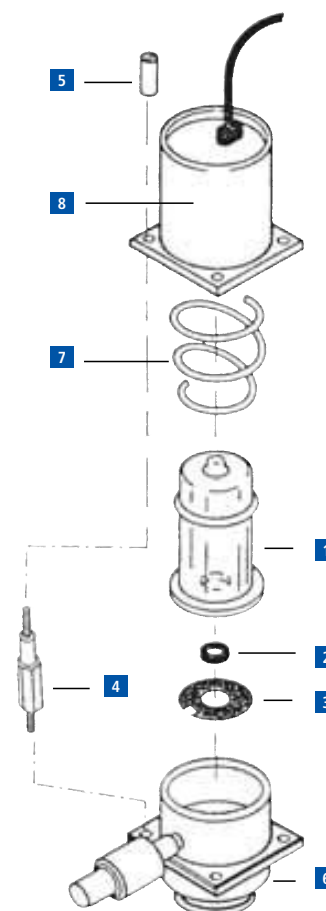
Voltage	Part No.
120 V	N6120130

Miscellaneous Accessories

Description	Part No.
Bakeout Disk	03302989
Lamp Cleaning Compound	03302775
1/8 in. Detector Receiver	03300865

PID Replacement Parts

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



Swagelok Fittings

The patented advanced-geometry back ferrule design provides a leak-tight tube connection on all Swagelok™ stainless steel tube fittings, in sizes 1/4 to 1/2 in., and 6 to 12 mm. Leak-tight seals that will withstand high-pressure, vibration, vacuum and temperature changes depend upon close tolerances and consistent, exacting quality control in conjunction with good design principles. Swagelok fittings from PerkinElmer are available in brass and stainless steel.

Features and Benefits

- Ease of installation
- Back ferrule axially advances the front ferrule
- Vibration fatigue resistance
- Wide variety of configurations

Swagelok™ Fittings

Product	Qty.	Size	Brass Part No.	Stainless Steel Part No.
Bulkhead Adapter	pkg. 1	1/4 in. to 1/4 in. tube		N9301267
Back Ferrule	pkg. 5	1/16 in.	N9300040	N9300042
		1/8 in.	N9300036	N9300038
		1/4 in.	N9300030	N9300032
Cross Union	pkg. 1	1/8 in.	N9301259	
Front Ferrule	pkg. 5	1/16 in.	N9300041	N9300043
		1/8 in.	N9300037	N9300039
		1/4 in.	N9300031	N9300033
Male Adapter Tube to Pipe	pkg. 1	1/4 in. tube to 1/8 in. NPT	N9301266	
Male Connector	pkg. 1	1/8 in. to 1/8 in. NPT	N9301253	
		1/8 in. to 1/4 in. NPT	N9301254	
		1/4 in. to 1/8 in. NPT	N9301255	
		1/4 in. to 1/4 in. NPT	N9301269	
Nut	pkg. 5	1/16 in.	N9300058	N9300059
		1/8 in.	N9300056	N9300057
		1/4 in.	N9300054	N9300055
Plug	pkg. 1	1/16 in.		N9300053
		1/8 in.	N9300060	N9300061
		1/4 in.	N9301268	N9301233
Union	pkg. 2	1/16 in.	N9300048	N9300049
		1/8 in.	N9300046	N9300047
		1/4 in.	N9300044	
Union Tee	pkg. 1	1/16 in.	N9301221	
		1/8 in.	N9301222	
		1/4 in.	N9301223	
Reducing Union	pkg. 1	1/8 in. to 1/16 in.	N9300051	N9301225
		1/4 in. to 1/8 in.	N9300050	N9301226
		1/4 in. to 1/16 in.	N9301227	