



# GC Septa



CenterGuide Septa Advanced Green™

## CenterGuide™ Septa for Improved Performance

- Center point guides the needle for easy penetration.
- Reduce needle bending
- Precision molding assures accurate fit
- Available in selected sizes of our premium septa
- Improves injection life in some applications

The CenterGuide™ design is currently available in many sizes of our septa **Septa BTO™**, **Maratahon™** and **Advanced Green™**.

## Septum Size Chart

Instrument	Septum size (mm)	Instrument	Septum size (mm)
<b>Agilent (HP)</b>		<b>PerkinElmer</b>	
5880A, 5890, 6890, 6850	11	Sigma Series	11
5700, 5880	9.5/10	900, 990	11
On-Column Injection	5	8000 Series	11
<b>CE Instruments (TQM)</b>		Auto SYS	11
TRACE GC	17	Auto SYS XL	11
<b>Finnigan (TQM)</b>		<b>Pye/Unicom</b>	
GC 9001	9.5	All models	7
GCQ	9.5	<b>Shimadzu</b>	
GCQ w/TRACE	17	All models	Plug
QCQ	9.5	<b>Varian</b>	
TRACE 2000	9.5	Injector Type:	
<b>Fisons/Carlo Erba (TQM)</b>		Varian Packed Column	9.5/10
8000 Series	17	Split/splitless	
		Varian 1078/1079	10/11
		Varian 1177	9
		Varian 1075/1077	11



## Septa BTO™ (Bleed and Temperature Optimized)

- Extended Temperature Range, Low Bleed
- Maximum Temperature 400 °C in most instruments
- Virtually eliminates injection-port sticking
- Pre-conditioned; packaged in glass to prevent contamination
- Each batch GC-FID tested
- Ideal for use with low bleed "Mass Spec" capillary columns

This septa has an excellent performance. You can use this septa at 400 °C with most modern GCs, for some models 375 °C is the maximum; for 17 mm injectors the maximum is 300 °C. When you need a septa that you need to use with high temperature and low bleed this is the septa you should use.

The BTO Septa has been optimized to reduce injection port adhesion. Is a ideal septa for trace analysis, high injection port temperature.

The BTO Septa are pre-conditioned and packages in glass to prevent contamination.

References	Diameter	Inch	Description	pk
TR-K298787	5 mm		Septa BTO for HP OCI port "Center Guide"	50
TR-K298705	9,5 mm	3/8"	Septa BTO	50
TR-K298745	10 mm		Septa BTO	50
TR-K298717	11mm	7/16"	Septa BTO "Center Guide"	50
TR-K298775	11,5 mm		Septa BTO for Varian	50
TR-K298725	12,7 mm	1/2"	Septa BTO	50
TR-K298815	17 mm		Septa BTO	50

## Cylindrical for Shimadzu Instruments

TR-K298735	Plug Type	Septa BTO for Shimadzu	50
------------	-----------	------------------------	----

## Measure Guide

your old septum here



5 mm



9 mm



9.5 mm



10 mm



11 mm



11.5 mm



12.7 mm



17 mm



# GC Septa



## Marathon Septa™ (The premium Septa for Autosamplers)

- Outstanding Lifetime
- Premium Septum for autosamplers
- Ideal for Overnight Runs
- Up to 400 injections per Septum
- Maximum Temperature 350 °C
- Soft, 45 Durometer, Easy On Autosampler Needles

The septa Marathon, has developed and advanced GC septum for autosampler use, with significantly longer life. The Marathon septum typically achieves 400 injections without failure, when used with a rounded-tip (HP-style) needles and autosampler or needle guide. Now you can make extended autosampler runs without fear of sample loss, caused by blow-back of leaking carrier gas. The Marathon septum is also ideal for standard manual-injection GC and GC/MS. It is packaged in glass vials.

References	Diameter	Inch	Description	pk
TR-K239587	5 mm		Marathon for HP OCI port "Center Guide"	25
TR-K239188	9,5 mm	3/8"	Marathon	25
TR-K239287	11 mm	7/16"	Marathon "Center Guide"	25
TR-K239788	11,5 mm		Marathon for Varian	25
TR-K239388	12,7 mm	1/2"	Marathon	25
TR-K239688	17 mm		Marathon	25

### Cylindrical for Shimadzu Instruments

TR-K239488	Plug Type		Marathon for Shimadzu	25
------------	-----------	--	-----------------------	----



## Septa Advanced Green 3™

- True Long-Life, High Temperature Green Septum
- More injections per Septum
- Reduced Injection Port Sticking
- Maximum Temperature 350 °C

The Septum Advanced Green 3 was specifically created to combine significantly longer injection life, low bleed and low injection port adhesion. The result is a green septum good for general purpose use. The septum are packaged in glass vials for high purity.

References	Diameter	Inch	Description	pk
TR-K246525	5 mm		Advanced Green 3™ for HP OCI port "Center Guide"	50
TR-K246124	9,5 mm	3/8"	Advanced Green 3™	50
TR-K246225	11 mm	7/16"	Advanced Green 3™ "Center Guide"	50
TR-K246724	11,5 mm		Advanced Green 3™ for Varian	50
TR-K246324	12,7 mm	1/2"	Advanced Green 3™	50
TR-K246624	17 mm		Advanced Green 3™	50

### Cylindrical for Shimadzu Instruments

TR-K246424	Plug Type		Advanced Green 3™ for Shimadzu	50
------------	-----------	--	--------------------------------	----

### Measure Guide

your old septum here



5 mm



9 mm



9.5 mm



10 mm



11 mm



11.5 mm



12.7 mm



17 mm



# GC Septa



## Septa 77™

This is our high-quality septum, suitable for most applications. It has been the standard septum in GC and GC/MS labs for years. Septa 77 features low bleed with excellent resealing capability and good temperature endurance. Septa 77 is carefully processed, then packaged in glass bottles for purity. Maximum temperature is 300 °C, except in 17 mm injection ports, 270°C.

References	Diameter	Inch	Description	pk
TR-K237785	5 mm		Septa 77 for HP 5880/90 OCI Port	50
TR-K237765	6 mm		Septa 77 for Hitachi (4,5 mm thick)	50
TR-K237755		1/4"	Septa 77	50
TR-K237705	9,5 mm	3/8"	Septa 77	50
TR-K237745	10mm		Septa 77	50
TR-K237715		7/16"	Septa 77	50
TR-K237725	12,7 mm	1/2"	Septa 77	50

### Cylindrical for Shimadzu Instruments

TR-K237735	Plug Type		Septa 77 for Shimadzu	50
------------	-----------	--	-----------------------	----



## Microsep™ Septa F-174 Medium-Performance Septum

This is a good -performance silicone septum faced on side with a layer of TFE teflon. Thickness is approximately 3 mm. The color is White/yellow . Sold in packages of 50.

References	Diameter	Inch	Description	pk
TR-K230905	9,5 mm	3/8"	Microsep Septa F-174	100
TR-K230115	11 mm	7/16"	Microsep Septa F-174	100
TR-K230125	12,5 mm	1/2"	Microsep Septa F-174	100



## Tekno Blue Septa (Economy Blue Septa)

The septa Tekno Blue are designed for non-demanding, routine applications. They are easy to penetrate, with a durometer rating of 40-45. These septa can be used up to 200-250 °C and are suitable for 90 % of all GC analysis. Made from silicone. The package is for 100 pieces.

References	Diameter	Inch	Description	pk
TR-K00500	6,4 mm	1/4"	Tekno Blue Septa	100
TR-K00510	9,5 mm	3/8"	Tekno Blue Septa	100
TR-K00520	11 mm	7/16"	Tekno Blue Septa	100
TR-K00530	12,5 mm	1/2"	Tekno Blue Septa	100



## Tekno Red Septa (General Purpose Septa)

- The Tekno Red Septa is a very low bleed septa .
- Is easy to penetrate
- Have a long injection lifetime at 300 °C
- Maximum temperature 350
- Durometer hardness is 45-55

References	Diameter	Inch	Description	pk
TR-K00300	9,5 mm	3/8"	Tekno Red	50
TR-K00320	11 mm	7/16"	Tekno Red	50
TR-K00330	12,5 mm	1/2"	Tekno Red	50



# GC Ferrules



## Capillary Column Ferrules

### Graphite

The best material for high temperature use. This is also the softest ferrule material, so it seals gas tight without the risk of breaking the column. It does not stick to glass at higher temperatures and may be reused or moved along the column several times if not overtightened; seals with finger-tight pressures. Its one-piece design fits both Swagelok™ and Parker™ fittings, and does not need a back ferrule. Upper temperature limit is 450°C.

### Vespel™/Graphite

60% polyimide - 40% graphite. This is especially recommended for GC/MS interface applications. Our one-piece design requires no back ferrule, and can be reused if not over-tightened. Upper temperature limit is 400°C.

### Vespel™

100% high-temperature polyimide. Vespel™ is fairly hard and tends to stick to glass columns, usually not reusable. One-piece design requires no back ferrule. Upper temperature limit is 350°C.

### Teflon™

These ferrules are made from 100% Teflon™ in a one-piece design that requires no back ferrule. Almost completely inert, fairly soft. Upper temperature limit is 250°C.

### Ferrules for Agilent (HP) HP 5890 and 6890

Ferrules ending with HP are reducing ferrules designed to fit all inlets and detectors on the HP 5890 and 6890, except the MSD. The MSD should be used with standard 1/16" ferrules, preferably made from Vespel/Graphite.

### Ferrules for Thermo Quest/Fisons/CE Instruments.

See in pages 66 and 67.

### Ferrules for Perkin Elmer Sigma Series

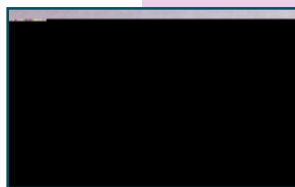
Use 1/8" ferrules

### Ferrules/Capillary Columns

0.25 mm id columns use 0.4 mm id ferrules

0.32 mm id columns use 0.5 mm id ferrules

0.53 mm id columns use 0.8 mm id ferrules



Graphite Ferrules

## Graphite Ferrules

- The best material for high temperature use.
- Upper temperature limit 450°C
- High-purity Graphite minimizes bleed effects and detector interferences in GC
- Preferred by capillary GC use
- Smoother surface cleanser edges
- Perfect sealing material for glass, and fused silica
- Reusable if not overtightened
- Not recommended for GC/MS connections

### Ferrules for Agilent Short Style 1/16" for 4890, 5890 and 6890 except MSD

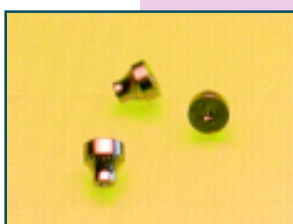
#### References

#### Capillary Column Ferrule

#### Fits column ID

#### pk

TR-K211165	1/16" to 0.5 mm	0.25 - 0.32 mm id	10
TR-K211168	1/16" to 0.8 mm	0.53 mm id	10
TR-K211160	1/16" to 1.0 mm	0.53 - 0.65 mm id	10



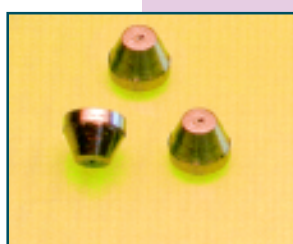
Agilent / Hewlett-Packard - Graphite



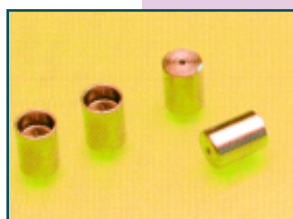
# GC Ferrules



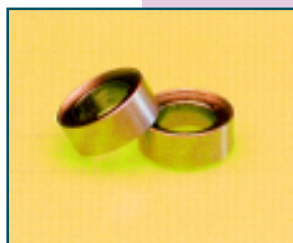
1/16" - Graphite Ferrules



Carlo Erba - Graphite for M8 nut



Fisons /Carlo Erba "Cup" Graphite Ferrule for M4 nut.



8 mm Graphite Liner Seal for Fisons/CE



O-ring made of Viton for Agilent HP

## Graphite Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K211104	1/16" to 0.4 mm	0.25 mm id	10
TR-K211105	1/16" to 0.5 mm	0.32 mm id	10
TR-K211108	1/16" to 0.8 mm	0.53 mm id	10
TR-K211110	1/16" to 1.0 mm	0.65 mm id	10

## Graphite 2-Hole Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K211124	1/16" 2-hole 0.4mm/0.4mm	0.25 mm id	10
TR-K211125	1/16" 2-hole 0.5mm/0.5mm	0.32 mm id	10

## Reducing Graphite Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K211204	1/8" to 0.4 mm	0.25 mm id	10
TR-K211205	1/8" to 0.5 mm	0.32 mm id	10
TR-K211208	1/8" to 0.8 mm	0.53 mm id	10
TR-K211210	1/8" to 1/16"	1/16" od	10
TR-K211405	1/4" to 0.5 mm	0.32 mm id	10
TR-K211408	1/4" to 0.8 mm	0.53 mm id	10
TR-K211420	1/4" to 1/8"	1/8" od	10
TR-K211410	1/4" to 1/16"	1/16" od	10

## Graphite 2-Hole Reducing Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K211222	1/8" 2 hole 0.5mm/ 0.5mm	0.32 mm id	10

## Speciality Graphite Ferrules for Shimadzu

References	Description	pk
TR-K211500	5 mm for Shimadzu 5 mm od columns	10

## Speciality Graphite Ferrules for Carlo Erba

References	Description	Fits column ID	pk
TR-K211904	0.4 mm ID for M8 nut	0.25 mm id	10
TR-K211905	0.5 mm ID for M8 nut	0.32 mm id	10
TR-K211908	0.8 mm ID for M8 nut	0.53 mm id	10

## Speciality Graphite Ferrules for Fisons/CE Cup Ferrule

References	Description	Fits column ID	pk
TR-K211982	Cup Ferrule 0.25 mm ID for M4 nut	0.20 mm id	2
TR-K211983	Cup Ferrule 0.35 mm ID for M4 nut	0.25 mm id	2
TR-K211984	Cup Ferrule 0.45 mm ID for M4 nut	0.32 mm id	2
TR-K211988	Cup Ferrule 0.8 mm ID for M4 nut	0.53 mm id	2
TR-K211948	Graphite Liner Seal 8 mm		1

## Graphite Straight Ferrules - for tubing with ods as listed

References	Capillary Column Ferrule	Fits column ID	pk
TR-K211100	1/16"	1/16"	10
TR-K211200	1/8"	1/8"	10
TR-K211400	1/4"	1/4"	10
TR-K211600	3/8"	3/8"	10
TR-K211800	1/2"	1/2"	5

## O-Ring made of Viton™ for Agilent

References	Description	pk
TR-K211973	O-Ring made of Viton for HP	12



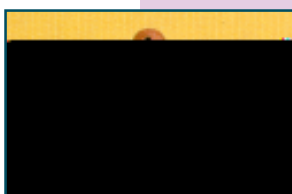
# GC Ferrules



Agilent HP- Graphite/Vespel™



Standard 1/16" - Graphite/Vespel™



Carlo Erba - Graphite/Vespel™



Standard 1/8" - Graphite/Vespel™



Standard 1/4" - Graphite Vespel™

## Vespel™ / Graphite Ferrules

- Precision drilled (id)
- One-piece design no black ferrule
- Stable to 400°C
- Recommended for GC/MS interface applications
- Can be re-used
- 40% graphite, 60% high temp DuPont polyimide

### Ferrules for Agilent Short Style 1/16" for 5890 and 6890 except MSD

References	Capillary Column Ferrule	Fits column ID	pk
TR-K213163	1/16" to 0.3 mm	0.10 mm id	10
TR-K213164	1/16" to 0.4 mm	0.25 mm id	10
TR-K213165	1/16" to 0.5 mm	0.32 mm id	10
TR-K213168	1/16" to 0.8 mm	0.53 mm id	10

### Vespel™/Graphite Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K213103	1/16" to 0.3 mm	-	10
TR-K213104	1/16" to 0.4 mm	0.25 mm id	10
TR-K213105	1/16" to 0.5 mm	0.32 mm id	10
TR-K213108	1/16" to 0.8 mm	0.53 mm id	10
TR-K213110	1/16" to 1.0 mm	0.65 mm id	10

### Vespel™/Graphite 2-Hole Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K213124	1/16" 2-hole 0.4mm/0.4mm	0.25 mm id	10
TR-K213125	1/16" 2-hole 0.5mm/0.5mm	0.32 mm id	10

### Vespel™/Graphite Straight Ferrules - for tubing with ods as listed

References		pk
TR-K213100	1/16"	10
TR-K213200	1/8"	10
TR-K213400	1/4"	10

### Reducing Vespel™/Graphite Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K213204	1/8" to 0.4 mm	0.25 mm id	10
TR-K213205	1/8" to 0.5 mm	0.32 mm id	10
TR-K213208	1/8" to 0.8 mm	0.53 mm id	10
TR-K213210	1/8" to 1/16"	1/16" od	10
TR-K213405	1/4" to 0.5 mm	0.32 mm id	10
TR-K213408	1/4" to 0.8 mm	0.53 mm id	10
TR-K213420	1/4" to 1/8"	1/8" od	10

### 2-Hole Reducing Vespel™/Graphite Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K213222	1/8" 2-hole 0.5mm/0.5mm	0.32 mm id	10





# GC Ferrules



VespeI™ Standard Ferrules



1/16" VespeI™ Ferrules: 0.5 mm id,  
Straight

## VespeI™ Ferrules

- Upper temperature limit 350°C
- 100% high-temperature DuPont polyimide
- Precision-drilled id. No imperfections from molding
- One-piece design requires no back ferrule
- Fairly hard; tends to seal permanently to the column

### VespeI™ Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K212103	1/16" to 0.3 mm	-	10
TR-K212104	1/16" to 0.4 mm	0.25 mm id	10
TR-K212105	1/16" to 0.5 mm	0.32 mm id	10
TR-K212108	1/16" to 0.8 mm	0.53 mm id	10
TR-K212110	1/16" to 1.0 mm	0.65 mm id	10

### VespeI™ 2-Hole Standard Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K212124	1/16" 2-hole 0.4 mm/0.4 mm	0.25 mm id	10
TR-K212125	1/16" 2-hole 0.5 mm/0.4 mm	0.32 mm id	10

### Reducing VespeI™ Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K212204	1/8" to 0.4 mm	0.25 mm id	10
TR-K212205	1/8" to 0.5 mm	0.32 mm id	10
TR-K212208	1/8" to 0.8 mm	0.53 mm id	10
TR-K212210	1/8" to 1/16"	1/16" od	10
TR-K212410	1/4" to 1/16"	1/16" od	10
TR-K212420	1/4" to 1/8"	1/8" od	10

### VespeI™ 2-Hole Reducing Ferrules

References	Capillary Column Ferrule	Fits column ID	pk
TR-K212222	1/8" 2-hole 0.5 mm ea	0.32 mm id	10

### VespeI™ Straight Ferrules - for tubing with ods as listed

References		pk
TR-K212100	1/16"	10
TR-K212200	1/8"	10
TR-K212400	1/4"	10



# GC Ferrules



Teflon

## Teflon™

- Upper temperature limit 250°C
- 100% Teflon, completely inert
- One-piece design requires no back ferrule

### Teflon™ Straight Ferrules - for tubing with ods as listed

#### References

		pk
TR-K214100	1/16"	10
TR-K214200	1/8"	10
TR-K214400	1/4"	10

### Teflon™ Standard Ferrules

#### References

	Capillary Column Ferrule	Fits column ID	pk
TR-K214103	1/16" to 0.3 mm	-	10
TR-K214104	1/16" to 0.4 mm	0.25 mm id	10
TR-K214105	1/16" to 0.5 mm	0.32 mm id	10
TR-K214108	1/16" to 0.8 mm	0.53 mm id	10
TR-K214110	1/16" to 1.0 mm	0.65 mm id	10

### Reducing Teflon™ Ferrules

#### References

	Capillary Column Ferrule	Fits column ID	pk
TR-K214204	1/8" to 0.4 mm	0.25 mm id	10
TR-K214205	1/8" to 0.5 mm	0.32 mm id	10
TR-K214208	1/8" to 0.8 mm	0.53 mm id	10
TR-K214210	1/8" to 1/16"	1/16" od	10
TR-K214410	1/4" to 1/16"	1/16" od	10
TR-K214420	1/4" to 1/8"	1/8" od	10

### 2-Hole Reducing Teflon™ Ferrules

#### References

	Capillary Column Ferrule	Fits column ID	pk
TR-K214222	1/8" 2-hole 0.5 mm ea	0.32 mm id	10

## Ferrule Accesories and Tools

### Dry Bit set

High speed steel drills let you drill ferrules to the size you need. The set includes 0.35 mm, 0.4 mm, 0.5 mm, 0.7 mm, 0.8 mm, 1.0 mm and 1.2 mm drill bits and pin vise.

#### Dry Bit Set

##### References

TR-K206250

##### Description

Drill Bit Set

### Septa Pick



Septa Pick

This is useful for removing small pieces of graphite ferrule from the cap and fittings of the column connectors; also removes pieces of septa found in threads of the injection port.

#### Septa Pick

##### References

TR-K205465

##### Description

Septa Pick





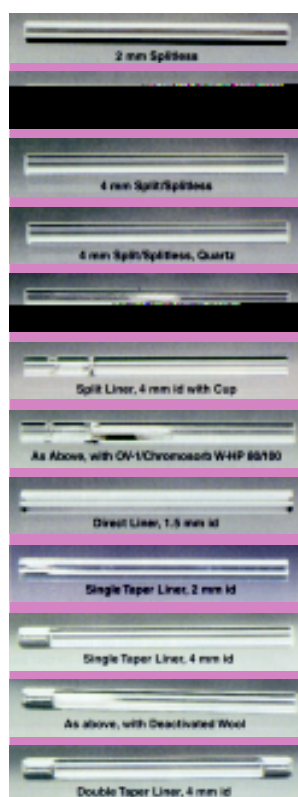
# Injection Port Liners

## Injection Port Liners for Capillary GCs

- Fits original equipment
- Polysiloxane deactivated borosilicate glass (quartz where noted)
- Guaranteed inert phenols, organic acids and bases
- Other configurations available on demand

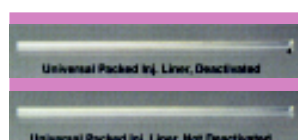
These capillary injection port liners (sleeves) provide a clean, non adsorptive surface for your sample. Regular replacement of liners eliminates "disappearing peaks". They also protect your capillary column from potentially harmful non-volatiles that might otherwise deposit on your column.

## Agilent (HP) Injection Port Liners



References	Description	Lenght	Equivalent Cat. Nbr.	Pk
TR-K208110	2 mm splitless	79 mm	18740-80220	1
TR-K208110-10			5181-8818	10
TR-K208111	2 mm splitless, Quartz	79 mm	5181-8818	1
TR-K208111-10			18740-80220	10
TR-K208112	4 mm split/splitless	79 mm		1
TR-K208112-10				10
TR-K208122	4 mm split/splitless, Quartz	79 mm		1
TR-K208122-10				10
TR-K208113	4 mm split/splitless, with Deactivated Glass Wool	79 mm	19251-60540	1
TR-K208113-10				10
TR-K208114	Split Liner, 4 mm id with Cup	79 mm	18740-80190	1
TR-K208114-10				10
TR-K208115	As above, with OV-1/Chromosorb W-HP 80/100	79 mm	18740-60840	1
TR-K208115-10				10
TR-K208118	Direct Liner, 1.5 mm id	79 mm	18740-80200	1
TR-K208118-10				10
TR-K208129	Single Taper Liner, 2 mm id	79 mm		1
TR-K208129-10				10
TR-K208119	Single Taper Liner, 4 mm id	79 mm	5181-3316	1
TR-K208119-10				10
TR-K208120	As above, with Deactivated Wool	79 mm	5062-3587	1
TR-K208120-10				10
TR-K208116	Double Taper Liner, 4 mm id	79 mm	5181-3315	1
TR-K208116-10				10

## For Agilent (HP) Packed Column GCs



References	Description	Lenght	Equivalent Cat. Nbr.	Pk
TR-K208130	Universal Packed Inj. Liner, Deactivated	93 mm	5181-3382	1
TR-K208130-25				10
TR-K208132	Universal Packed Inj. Liner, Not Deactivated	93 mm	5080-8732	1
TR-K208132-25				10



# Injection Port Liners

## Note the difference..

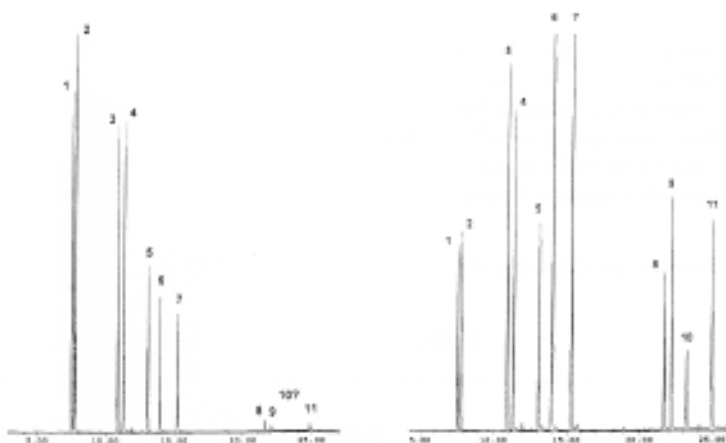
Between a properly deactivated liner and a non-deactivated liner. Both phenol runs were performed on the same column and GC under identical conditions except for the liners.

**Column:** Bonded Trifluoropropyl Polysiloxane  
0.25 mm I.D. x 30 m x 0.2 mm film

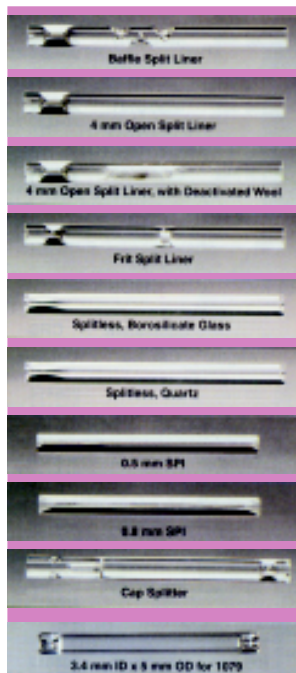
Temp: 50°C(7min)-270°C  
Injector: 225°C  
Detector: MSD, Interface temp-290°C  
Carrier gas: HE, 30cm/sec

### Peaks

1. Phenol
2. 2-chlorophenol
3. 2,4-Dimethylphenol
4. 2,4-Dichlorophenol
5. 2-Nitrophenol
6. 4-Chloro-3-methylphenol
7. 2,4,6-Trichlorophenol
8. 4-Nitrophenol
9. Pentachlorophenol
10. 2,4-Dinitrophenol
11. 4,6-Dinitro-2-methyl phenol

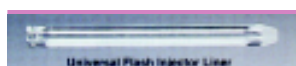


## Varian Capillary Injection Port Liners



References	Description	Length	Equivalent Cat. Nbr.	Pk
TR-K208310	Baffle Split Liner	72 mm	01-900109-04	1
TR-K208310-10			16-000829-00	10
TR-K208311	4 mm Open Split Liner	72 mm	16-0008300-00	1
TR-K208311-10				10
TR-K208313	4 mm Open Split Liner, with Deactivated Wool	72 mm	01-900109-01	1
TR-K208313-10				10
TR-K208312	Frit Split Liner	72 mm	01-900109-03	1
TR-K208312-10			16-000830-01	10
TR-K208314	Splitless, Borosilicate Glass	74 mm	01-900109-05	1
TR-K208314-10			03-949437-90 & 00	10
TR-K208315	Splitless, Quartz	74 mm		1
TR-K208315-10				10
TR-K208316	0.5 mm SPI	54 mm	01-900109-06	1
TR-K208316-10			03-918332-01	10
TR-K208318	0.8 mm SPI	54 mm	01-900109-07	1
TR-K208318-10			03-918332-02	10
TR-K208320	Cup Splitter	72 mm	01-900109-02	1
TR-K208320-10				10
TR-K208346	3.4 mm ID x 5 mm OD for 1079	54 mm		1
TR-K208346-10				10

## Varian Packed Injection Port Liners



References	Description	Length	Equivalent Cat. Nbr.	Pk
TR-K208330	Universal Flash Injector Liner	73 mm	37-000813-00	1
TR-K208330-10				10



# Injection Port Liners

Carlo Erba **Capillary** Injection Port Linert Lref0.063 0.003 0 0.029 k558.735 724.37M .54i00M4rref3 724.3722 m28.525 810.501 41.821 823.794 58.223 8



# Maintenance - Kits and Tools



## Capillary Survival Kit™

Save 35% over items bought individually.

Each kit includes:

- Magnifier with built-in light
- Slide-Lok tweezers for holding small items; "spacing" the column proper distances into the injection port, etc.
- 15 cm steel ruler
- 3 column scribes, for cleanly-cut columns
- 2 Universal Unions for joining broken capillary columns
- Single-ended pin vise holds drill bits
- 3 Drill Bits 0.4 mm, 0.5 mm and 0.8 mm
- Multipurpose Septum Pick
- Nylon Brushes 1/8", 3/16" and 1/4" od
- Open-end wrench, 1/4" + 5/16"
- High-temperature string (>400°C) 25 ft.
- Ferrule Remover
- Pipecleaners 5 each 1/8" od and 1/4" od

Reference	Description
TR-K-205625	Capillary Survival Kit

## Packed Column Change Kit



This has everything you need for hooking up columns in the GC lab. The Column Change Kit includes three ratchet wrenches, 7/16", 1/2" and 9/16"; one Imp™ Tubing cutter, and one roll of Teflon™ tape, 1/2" x 520". The ratchet wrenches are ideal for tight spaces; the ratchet tips can be opened, then snapped closed around fittings.

Reference	Description
TR-K-205250	Column Change Kit

## Fine Wire Kit



The Fine Wire Kit lets you clean many small items around the lab; also useful for bending into microhooks, other uses. The Kit contains a pin vise, and 30 stainless steel wires, 10 each of the following sizes: 0.006", 0.010" and 0.020".

Reference	Description
TR-K-205230	Fine Wire Kit

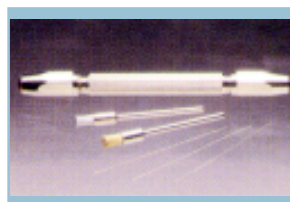
## Needle Cleaning Kit



This Kit is specifically designed for cleaning syringes and needles. It includes one bottle of organic, biodegradable cleaning solution, and 10 each of five different diameter tungsten wires, ranging in diameter from 0.0035" to 0.0121". Suggested cleaning procedures are included. This kit is especially recommended for cleaning Hamilton Syringes.

Reference	Description
TR-K-76620	Needle Cleaning Kit

## FID Cleaning Kit

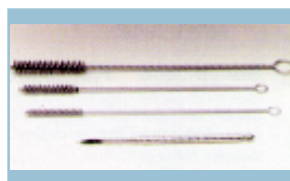


The Flame Detector Cleaning Kit improves sensibility while reducing noise and spikes. Use it to clean both the jet tip and collector. The FID Cleaning Kit includes everything you'll need: three jet reamers (0.16", 0.19" and 0.024") with a unique spiral design that can clean without

scratching; a mini drill bit (0.0102"), two wire minibrushes, one brass and one stainless steel; and a dual-ended handle for the reamers and brushes.

Reference	Description
TR-K-205220	FID Cleaning Kit

## Injection Port Cleaning Kit



This is designed for cleaning all GC Injection ports, including those in Shimadzu instruments. Included are three stainless steel brushes, 5mm (for Shimadzu), 1/4" and 3/8", and one scraper for removing septum residue.

Reference	Description
TR-K-206211	Inj. Port Cleaning Kit

## Utility Ring Stand



This nickel-plated ring stand is useful for holding bubble flowmeters, as well as wide variety of standard lab equipment. The support rod is 5/16" od x 20".

Clamps are available separately. The plastic-coated jaws hold around glassware from, 3/8" to 1 3/8" in diameter. The small clamp is useful for securing items 3/8" in diameter and less (10 ml and less bubble flowmeters; thermometers). Rotates 360°C. The Ring Stand Clamps are made from zinc-plated steel.

Reference	Description
TR-K-205570	Utility Ring Stand
TR-K-205571	Large Ring Stand Clamp
TR-K-205572	Small Ring Stand Clamp



# Maintenance - Kits and Tools

## Glass Tubing Cutter



For shortening glass columns or inserts; other applications involving glass tubing. The hardened steel cutting wheel scores tubing as it is turned; cuts tubing up to 1.5".

Reference	Description
-----------	-------------

TR-K205595	Glass Tubing Cutter
------------	---------------------

TR-K2055969	Spare Cutting Wheels, 5/pk
-------------	----------------------------

## Stopwatch



This 1/100th second Stopwatch has split/lap and normal time. It displays hours, minutes, seconds, day, date and month. Quartz accuracy. Useful for measuring gas glow with bubble flowmeters. Has alarm feature.

Reference	Description
-----------	-------------

TR-K205200	Stopwatch
------------	-----------

## Adjustable Wrench



6 inch or 10 inch. The 6" wrench opens to 15/16" for all common Swage-lok connectors. The 10" wrench opens to 15/16" for standard CGA fittings. Chromeplated, drop-forged steel.

Reference	Description
-----------	-------------

TR-K205586	Adjustable Wrench 6 inch
------------	--------------------------

TR-K205588	Adjustable Wrench 10 inch
------------	---------------------------

## Ratchet Wrench



The jaws of the Ratchet Wrench open, to slip over fittings already in place. Makes tightening or loosening in cramped areas easy. Three sizes available: 7/16", 1/2" or 9/16"

Reference	Description
-----------	-------------

TR-K205593	Ratchet Wrench 7/16"
------------	----------------------

TR-K205592	Ratchet Wrench 1/2"
------------	---------------------

TR-K205591	Ratchet Wrench 9/16"
------------	----------------------

## Goose-neck Flashlight



Illuminates hard-to-reach areas. The Goose-neck flashlight has a flexible neck which can be bent as desired. Includes batteries.

Reference	Description
-----------	-------------

TR-K205628	Goose-neck Flashlight
------------	-----------------------

## Jeweler's ScrewDrivers



Six flat-head screwdrivers with convenient swivel-top handles. Blades are from 0.025" to 0.100" in width.

Reference	Description
-----------	-------------

TR-K205676	Jeweler's ScrewDrivers
------------	------------------------

## Allen Wrench Set



Standard or Metric. The standard (USA) Allen wrenches come in a set of 9, from 0.050" to 3/16". The metric Allen wrenches come in a set of 7, from 1.5mm to 6mm.

Reference	Description
-----------	-------------

TR-K205670	Allen Wrench Set Standard
------------	---------------------------

TR-K205671	Allen Wrench Set Metric
------------	-------------------------

## Micro Hook



This is a multi-purpose hook used for pulling O-rings, springs, or septum fragments.

Reference	Description
-----------	-------------

TR-K205678	Micro Hook
------------	------------

## Magnet on a Stick



This is used to pick up small objects such as screws and nuts from instrument cabinets and circuit boards.

Reference	Description
-----------	-------------

TR-K205630	Magnet on a Stick
------------	-------------------

## Threadulator Thread Cutter



Cleans up cross-threaded fittings on columns, etc.; use with welded instrument fittings to avoid expensive replacement. Knurled outer handle for secure gripping; hardless steel cutter. Available in three sizes.

Reference	Description
-----------	-------------

TR-K205638	Threadulator, 1/16"
------------	---------------------

TR-K205640	Threadulator, 1/8"
------------	--------------------

TR-K205642	Threadulator, 1/4"
------------	--------------------

## Teflon™ Tape



This is great for leak-proofing fittings; dry-lubricating joints. Do not use over ferrules. Teflon tape comes in rolls of 520 inches, 1/2" wide.

Reference	Description
-----------	-------------

TR-K205117	Teflon Tape
------------	-------------



# Maintenance - Kits and Tools

## Capillary/HPLC Wrench Set



This set includes 4 wrenches for use on 1/32", 1/16", or 1/8" nuts. The wrench ends are 3/16", 1/4", 5/16", 3/8" and 7/16".

### Reference

TR-K205320

### Description

Capillary/HPLC Wrench Set

## Needle-Nose Pliers



These are useful for picking up or clamping small parts. Comes with vinyl grips for sure grip.

### Reference

TR-K205626

### Description

Needle-Nose Pliers

## Mirror on a Stick



The Mirror on a Stick lets you peer around corners or tight spaces; also used at the outlet of flame detectors; condensation on the mirror indicates the flame is lit.

### Reference

TR-K205632

### Description

Mirror on a Stick

## 4-in-1 Screwdriver



Comes with two double-ended heads, each with a flat and phillips head. Just flip the end to change the tip.

### Reference

TR-K205624

### Description

4-in-1 Screwdriver

## Open End Wrenches



This set fits most types of fittings. Sizes range from 5/16" to 9/16" in 1/16" increments. Made from chromeplated steel. 5 wrenches.

### Reference

TR-K205622

### Description

Open End Wrenches

## Wire Stripper/Crimper



Useful for cutting or stripping wire, and crimping on connectors. For repairs, maintenance, prototyping.

### Reference

TR-K205574

### Description

Wire Stripper/Crimper

## Lighted Magnifier



This is perfect for inspecting capillary end cuts and syringe tips. The 1 1/4" x 1 1/4" lens magnifies 4x; small bifocal insert lens measures 8x. Keep one in your desk. Batteries included.

### Reference

TR-K205648

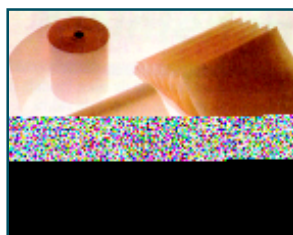
### Description

Lighted Magnifier





# Chart Paper



## Chart Paper

- High Quality Chart Papers
- Available for many popular Integrators and recorders
- Buy the Case for Bigger Savings

## Thermal Paper

### Papers for Hewlett Packard

References	Model Number	Chart Type	Qty.	Manuf. Chart Paper Nbr.
TR-K443181	5880A, 3888A	8.5" x 184', Z-fold blue	5/cs	5080-8778
TR-K443182		8.5" x 184', Z-fold black	5/cs	9270-0658
TR-K443192	5840A, 5880 GC, 3380A, 3385A Int.	8.5" x 184', Z-fold blue	5/cs	5080-8735
TR-K443193	1082, 1084 LC	8.5" x 184', Z-fold black	5/cs	
TR-K443194	3392, 3393A Int.	4.2" x 400', roll blue	2/cs	5080-8800
TR-K443195		4.2" x 400', roll black	2/cs	
TR-K443191	3396A	9.5" x 272', roll, ink jet	4/cs	5181-1219
TR-K443179	3396A	8.5" x 230', Z-fold ink jet	5/cs	5062-3561

### Papers for Shimadzu

References	Model Number	Chart Type	Qty.	Manuf. Chart Paper Nbr.
TR-K441610	CR1A, CR1B	8 3/16" x 170', roll black	1 roll	221-13391-01
TR-K443612	CR3A	8 3/16" x 167', roll black	10/cs	221-25412-00
TR-K441613	CR4A	255 mm x 148", black	1 roll	223-02000-12
TR-K443615	CR5A	208 mm x 148", black	10/cs	223-02037-81
TR-K441617	CR7A	10 1/6" x 148'	1 roll	200-91527

### Papers for Varian

References	Model Number	Chart Type	Qty.	Manuf. Chart Paper Nbr.
TR-K443620	3400/3500/3600	4.3" x 150', black	2/cs	03-917650
TR-K443604	Vista 401/402	8.5" x 184', Z-fold, black	5/cs	03-906362-0
TR-K441599	4270/4290	9.4" x 183', roll, black	1 roll	00-997096-01

### Papers for Waters

References	Model Number	Chart Type	Qty.	Manuf. Chart Paper Nbr.
TR-K441608	730	8.5" x 184', Z-fold, blue	1 pack	74703



# Chart Paper

## Papers for Hitachi

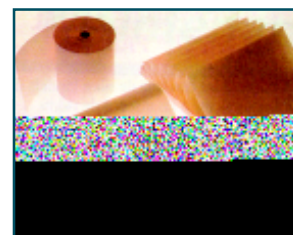
<u>References</u>	<u>Model Number</u>	<u>Chart Type</u>	<u>Qty.</u>	<u>Manuf. Chart Paper Nbr.</u>
TR-K443170		234 mm x 160', black	9/cs	661-7501

## Papers for Perkin Elmer

<u>References</u>	<u>Model Number</u>	<u>Chart Type</u>	<u>Qty.</u>	<u>Manuf. Chart Paper Nbr.</u>
TR-K441189	LC1-100	283 mm x 100', Roll, black	1 roll	N-625-1026

## Papers for Spectra Physics

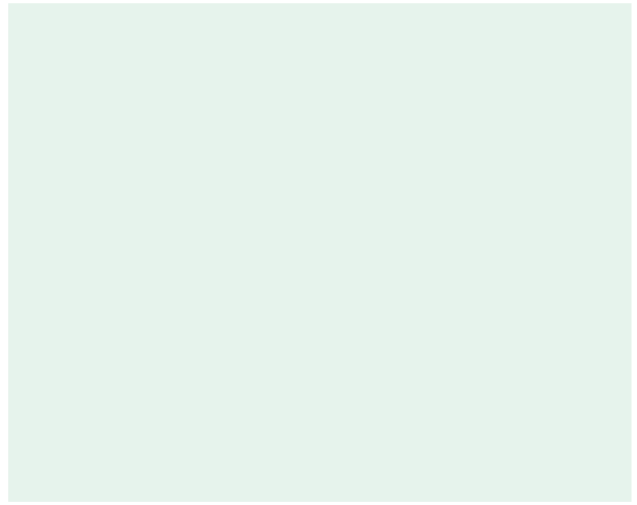
<u>References</u>	<u>Model Number</u>	<u>Chart Type</u>	<u>Qty.</u>	<u>Manuf. Chart Paper Nbr.</u>
TR-K443596	SP-4000 Series	9.4" x 184', Z-fold, black	5/cs	A0022-020
TR-K443598	SP-4270, SP-4290 Chromojet, CH1, CH2	9.4" x 167', roll, black	10/cs	A2157-020



# Recorder Paper

<u>Manufacturer</u>	<u>References</u>	<u>Model Number</u>	<u>Chart Type</u>	<u>Qty.</u>	<u>Manuf. Chart Paper Nbr.</u>
Houston	TR-K443198	D-5000, B-5000	11" X 100' roll, 0-10 English	4/cs	EC-103
Kipp & Zonen	TR-K441199	BD111/12, BD40/41	230 mm x 66', 0-100	1 roll	XR-9
Linear	TR-K441184	1201/1202/1210	230 mm x 83', roll	1 roll	0100-0026
Linear	TR-K441186	142/143	120 mm x 100', roll	1 roll	0100-0011
Perkin Elmer	TR-K441395	56/200/561	276 mm x 100', roll	1 roll	056-7300

# Gas & Handling Purification





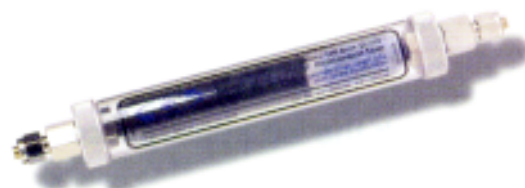
# Gas & Handling Purification



## Safe Glass Moisture Trap

This filter is designed for use with GC detectors needing very high purity gases, such as electron capture or Hall electrolytic conductivity. Gas contacts only glass, metal and the adsorbents for purity, and the trap may be used in any orientation. An internal screen at each end prevents particulate contamination. The Safe Glass Trap is enclosed in a plastic outer sheath. The outer sheath can be removed to reactivate the inner glass tube by baking under inert gas flow; instructions included. It contains 55 cc total adsorbents. Maximum pressure is 100 psig. Dimensions 1 3/8" x 10 1/4".

References	Description
TR-K202260	Big Trap 1/8" fittings
TR-K202262	Big Trap 1/4" fittings
TR-K202266	Safe Glass Moisture Trap for ECD 1/8" fittings
TR-K202268	Safe Glass Moisture Trap for ECD 1/4" fittings



## Model 100 Safe Glass Hydrocarbon Trap

The Model 100 is designed to provide organics free gas, with an indicator for moisture contamination. The gas contacts only metal or glass for high purity. It contains indicating Drierite™ and activated charcoal; the inner glass tube is protected by an outer tube of clear plastic. Internal stainless steel screens at end of the trap protect against fines entering the gas stream. It can be used in any orientation without gas channeling. The Trap can be regenerated by heating under inert gas flow after removing the outer plastic guard; instructions included. The Trap should be purged before use with the gas you will be using. Maximum pressure is 100 psig. The Model 100 is supplied with 1/8" or 1/4" fittings. Approximate dimensions 1 3/8" x 10 1/4".

## Hydrocarbon Trap / CO2 Trap



## Model 300 High Pressure Hydrocarbon Trap

This high pressure metal cylinder filled with 500 cc of activated charcoal, one of the most effective adsorbents for organics and hydrocarbons. It will remove all hydrocarbons at room temperature except methane, from your FID air and H<sub>2</sub> lines, to minimize noise and extraneous peaks in the signal. It is also recommended for use with purge and trap apparatuses, and with GC carrier gases for trace analyses. Highest efficiency is obtained using flow rates below 500cc/min. Frits in each end prevent fines from entering the gas stream. The Model 300 is delivered filled with high purity helium; It should be purged before use with the gas you will be using. Maximum pressure is 1000 psig. The Model 300 comes with 1/8" or 1/4" fittings. Approximate dimensions 2" x 14".



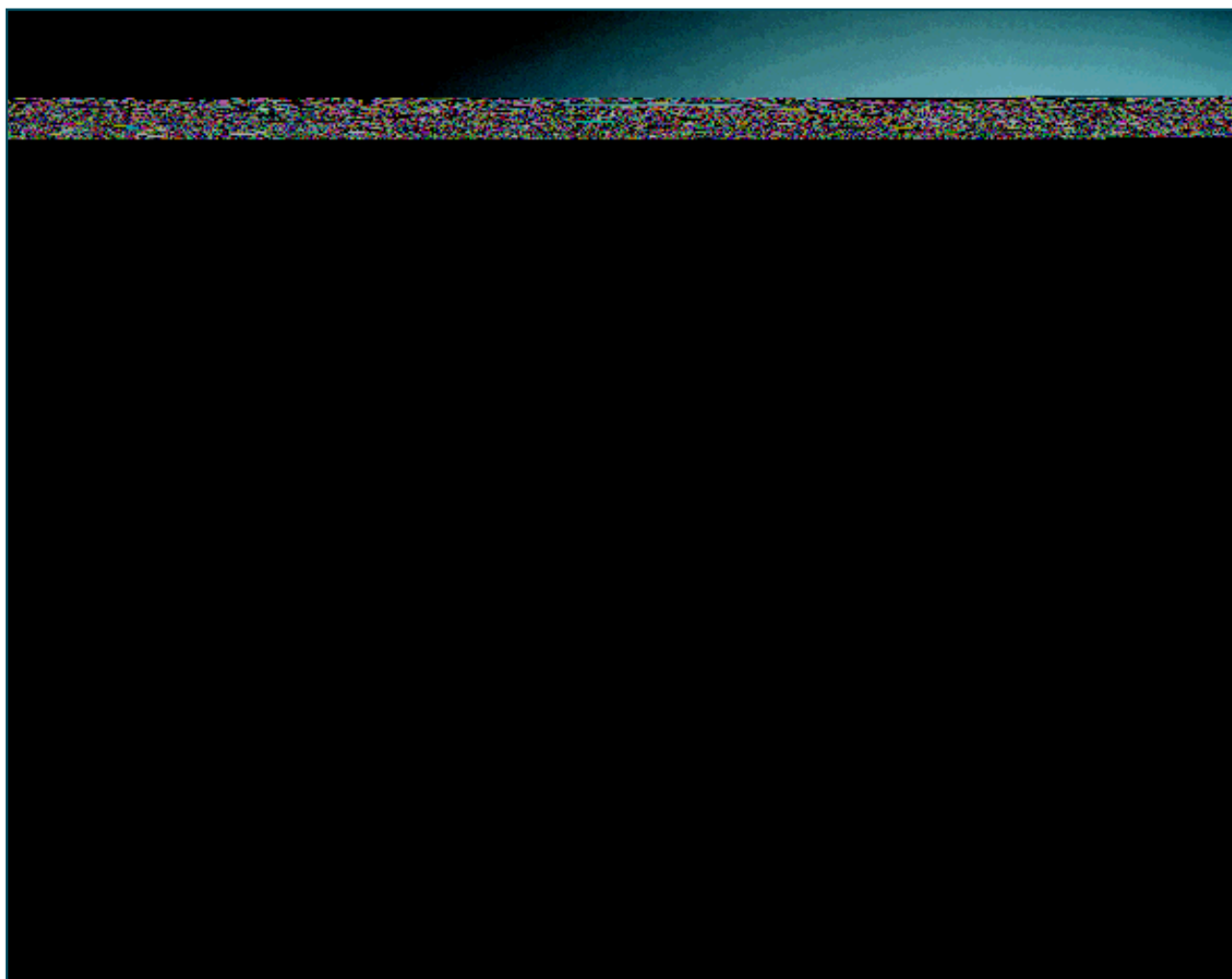
## Carbon Dioxide Trap

Remove carbon dioxide from your gas stream with our carbon dioxide Trap. High capacity, it will irreversibly bind 100 g of carbon dioxide. Its unique design uses NaOH blended with molecular sieve to scrub out CO<sub>2</sub>. The reaction produces water which is adsorbed by the molecular sieve. Not recommended for GC use. When down stream water is a concern we recommend using a second moisture trap in line as a safety measure. Maximum pressure for the Carbon Dioxide trap is 1000 psig; approximate dimension 2" x 14".

References	Description
TR-K202330	Model 300 Hydrocarbon Trap 1/8" fittings
TR-K202332	Model 300 Hydrocarbon Trap 1/4" fittings
TR-K202340	Model 100 Safe Glass Hydrocarbon Trap 1/8" fittings
TR-K202342	Model 100 Safe Glass Hydrocarbon Trap 1/4" fittings
TR-K202350	Carbon Dioxide Trap 1/8" fittings
TR-K202352	Carbon Dioxide Trap 1/4" fittings



# Super-Clean Gas Filters



## A revolution in gas purifying of GC and GC/MS gases

Unique «POINT-OF-USE» and «SEMI IN-LINE» glass/metal, diffusionproof Super-Clean Gas Filters, purify the delicate carrier and burner gases for your GC and GC/MS system for Hydrocarbons, Oxygen (colour indicated) and Moisture (colour indicated) to better-as 6.0 gas (99,9999%) quality, independent of the original gas quality.

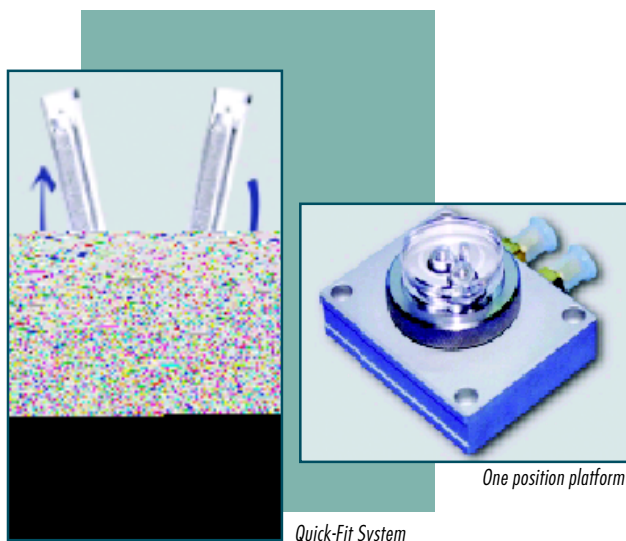
## Analytical advantages of SGT Super-Clean Gas Filters

- Longer lifetime of analytical columns, avoids bleeding, espec. important for MS and ECD.
- Better sensitivity, decreases baseline noise, eliminates spikes.
- Filter-change during analysis within seconds, system stays online.

Filter Type	Gas Quality at the outlet	Max. Pressure	Use	Color Change	Water(gr)	Capacity O <sub>2</sub> (ml)	Hydrocarb.	Stimted LifeTime*
Moisture	>6.0	11 bar	Carrier gas Air Hydrogen	Blue to Yellow	7,2			>2 years
Oxygen	>6.0	11 bar	Carrier gas	Green to grey		1000		>2 years
Hydrocarbons	>6.0	11 bar	Carrier gas Air Hydrogen	No Indicator			Not specified	>2 years
Comb.(Ox/Char.)	>6.0	11 bar	Carrier gas Air Hydrogen	Blue to Yellow	3,6		Not specified	>1,5 years
MS Triple (Moist/Ox/Char)	>6.0	11 bar	Carrier Gas	Blue to Yellow Green to grey	1,8	500	Not specified	>1 year



# Super-Clean Gas Filters



## Spec's on SGT Super-Clean Gas Filters

- The specified lifetimes are strongly depending of the quality of the incoming gas.
- Effectivity: <0.1 ppm at a flowrate of 2 liters/minute

## Benefits of the "quick-fit" system:

- Filter replacement within seconds.  
- **Eliminates GC downtime.**
- Tool-less filter replacement.  
- **Easy handling**
- Diffusion-proof Baseplate (also during filter replacement).  
- **Eliminates analytical disturbance.**
- Baseplates can be wall-mounted.  
- **Convenient positioning**

## Standard Configurations

### PURIFICATION OF CARRIER GAS

- Removal of Oxygen, moisture and hydrocarbons for longer column lifetime and cleaner baseline.
- Use a Triple filter on 1-position baseplate.
- Excelent for Carrier gas and ECD, MS applications

**SG-F0301** Filter, Triple (O<sub>2</sub>/Moisture/Hydrocarbons)  
**SG-B0010** Baseplate for 1 Super Clean Gasfilter

### PURIFICATION OF GASES FOR FID

- Removal of moisture and hydrocarbons in the gases of the FID for a better baseline.
- 2 Combi filter (Hydrocarbons/moisture) (One for Air & one for Hydrogen)

**2u. of SG-F0201** Filter, Combi, high capacity, (Hydrocarbons/moisture).

**2u. of SG-B0010** Baseplate for 1 Super Clean Gasfilter

### PURIFICATION FOR CARRIER AND FID GASES

- The full solution for your GC/FID system
- Use a Triple + 2 Combi filter (One for Air & one for Hydrogen)

**1u. of SG-F0301** Filter, Triple (O<sub>2</sub>/Moisture/Hydrocarbons)

**2u. of SG-F0201** Filter, Combi, high capacity, (Hydrocarbons/moisture).

**3u. of SG-B0010** Baseplate for 1 Super Clean Gasfilter

### HIGH CAPACITY PURIFIERS FOR CARRIER AND FID GASES

- Recommended for low quality gases
- Use Ultra Capacity Moisture and Oxygen filters for carrier + 2 Ultra Capacity HydroCarbon filter (One for Air & one for Hydrogen)

**1u. of SG-F0101** Moisture filter, standard, ultra capacity

**1u. of SG-F0102** Oxygen filter, standard, ultra capacity

**2u. of SG-F0103** Hydrocarbons filter, standard, ultra capacity

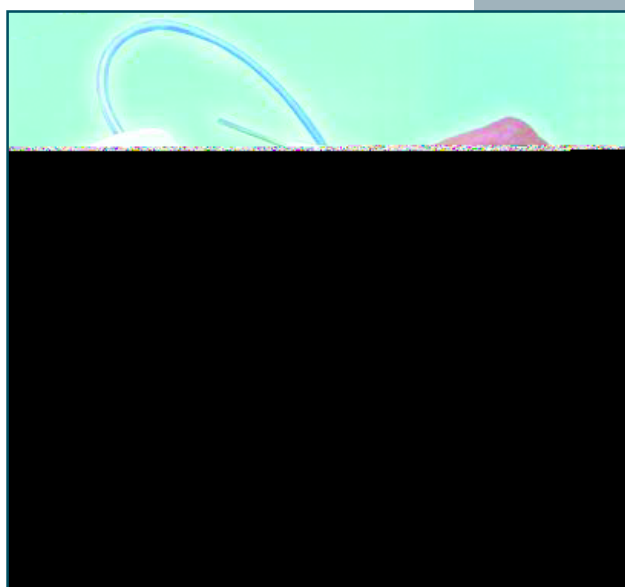
**4u. of SG-B0010** Baseplate for 1 Super Clean Gasfilter

References	Description
<b>SG-B0010</b>	Baseplate for 1 Super Clean Gasfilter
<b>SG-B0020</b>	Baseplate for 2 filters
<b>SG-B0030</b>	Baseplate for 3 filters
<b>SG-F0101</b>	Moisture filter, standard, ultra capacity
<b>SG-F0102</b>	Oxygen filter, standard, ultra capacity
<b>SG-F0103</b>	Hydrocarbons filter, standard, ultra capacity
<b>SG-F0301</b>	Filter, Triple (O <sub>2</sub> /Moisture/Hydrocarbons)
<b>SG-F0201</b>	Filter, Combi, high capacity, (Hydrocarbons/moisture)
<b>SG-F0730</b>	Filter bundle of 3 (Triple + 2x Hydrocarbons/ moisture Combi)
<b>SG-F0740</b>	Filter bundle of 4 (standard : oxygen, moisture + 2x Hydrocarbons)





# Helium Gas Leak Check



## Helium Gas Leak Check

- Pipe fittings
- Welding parts
- Pressure regulators

## Specifications

Detection Method:	Thermal Conductivity Detector
Target gas:	Helium
Range:	High/Low
Sensitivity:	Minimum Detection Limit 0.01 mL/min
Display:	LCD
Power Supply:	Rechargeable Battery
Operation Temp:	10-35°C
Dimensions:	65 (W) x 37 (D) x 143 (H) mm
Weight:	330g approx.
Accessories:	Recharger AC 100 - 220v

## References

GL-2702-1941

GL-XXXXX

## Description

Helium Gas Leak Detector LD 229

Recharger AC 100 - 220v



# Teknokroma 2t Head Space Sampler



## The First Manual System For Static Head Space

### Technical specifications

Heating temperature Range:	up to 120°C.
Variable injection:	up to 2,5 ml.
Temperature accuracy:	+/- 0,5°C
Holds up to 6 vials of:	2, 4, 6, 9, 10, 12, 20, 22 and 27 ml.
Sampling time control with acoustic alarm:	1 to 99 seconds
Equilibrium time control with acoustic alarm:	1 to 99 minutes
Stabilization time from 25°C to 70°C with 1 ml syringe and 6 empty 20 ml vials:	8 minutes
Safety temperature:	150°C
Power:	220 +/- 10% VAC.

### It is according the Pharmacopeia test:

European Pharmacopeia 4th. (2002). "Gas Chromatography will static head-space injection 2.2.28". "It is possible to use airtight syringes and a conventional chromatograph".

USP 26(2003 <467> Organic Volatile Impurities: "Proceed as direct under Method V, except to inject, using a heated gas-tight syringe, 1 ml. of the headspace".

### The Teknokroma 2t Head Space Sampler for Head Space technique within your reach with a low cost and high precision level

The 2t sampler is the first manual system for Static Head Space which allows the application of this technique in a quantitative, economical and precise manner.

Now it is possible to use the Static Head Space technique with a manual equipment. the Teknokroma 2t sampler is a low cost, high versatility and easy operations system. For this reason the Static Head Space technique is being successfully introduced to laboratories.

The new 2t sampler makes the Head Space technique available to all Gas Chromatography users.

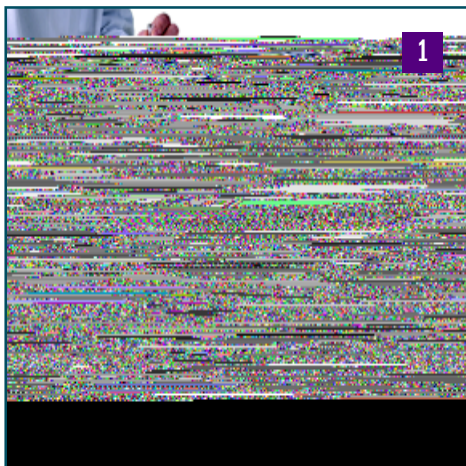
It complies with all the European CE requirements.

### Applications

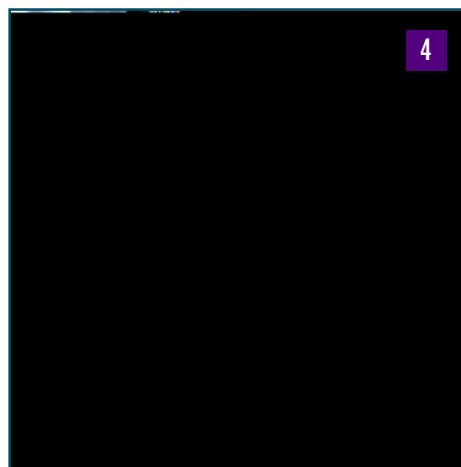
- Volatiles in pharmaceuticals
- Flavours analysis in food and cosmetic products
- Alcohol and other toxic compounds in blood
- Screening of volatiles in all type of environmental samples (soils, waters, plastics, polymers, etc.)



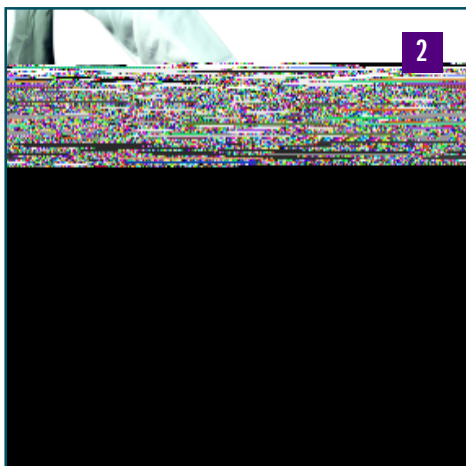
# Teknokroma 2t Head Space Sampler



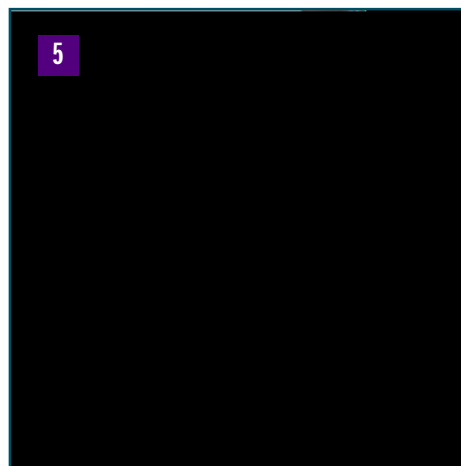
Put the syringe into the black holder.



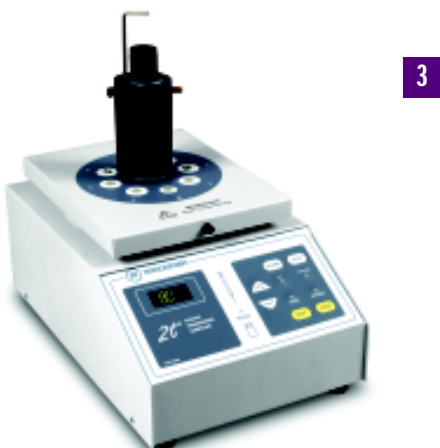
After the equilibrium time is achieved, move the syringe holder into vial number 1, and aspirate the sample by moving the plunger up until the prefixed volume is reached.



Insert the closed vials with the sample into the heating block.



Inject the sample into the GC.  
Repeat this sequence for the additional samples.



- Insert the syringe holder into the heating block.
- Set the temperature and the equilibrium time with the keyboard.
- Press the start.



# Teknokroma 2t Head Space Sampler

## Performance qualification

To check the Head Space sampler, proper performance, the following reproducibility test is recommended. In this test, we check not only the equipment performance but we also evaluate:

- The vials are correctly sealed.
- The sampling procedure followed by the analyst is correct
- The Gas Chromatograph works properly
- The data-acquisition system works properly

## Sample preparation

Add 2.5 µl of benzene and 2.5 µl of toluene to 100 ml of water (25ppm), stir up until it is completely dissolved.

Adjust headspace sample conditions and inject. Integrate the benzene and toluene peaks of the 6 chromatograms obtained. The Relative Standard Deviation of the area quotients must be lower than 5%.

Benzene area	Toluene area	Area Ratio
3418.461	5441.008	0.628
3466.125	5449.905	0.625
3359.176	5381.354	0.624
3316.646	5374.388	0.624
3782.404	6035.683	0.627
3794.026	6063.646	0.626
Mean Value		0.626
Standard deviation (SD)		0.00163
Relative standard deviation (RSD)		0.26%

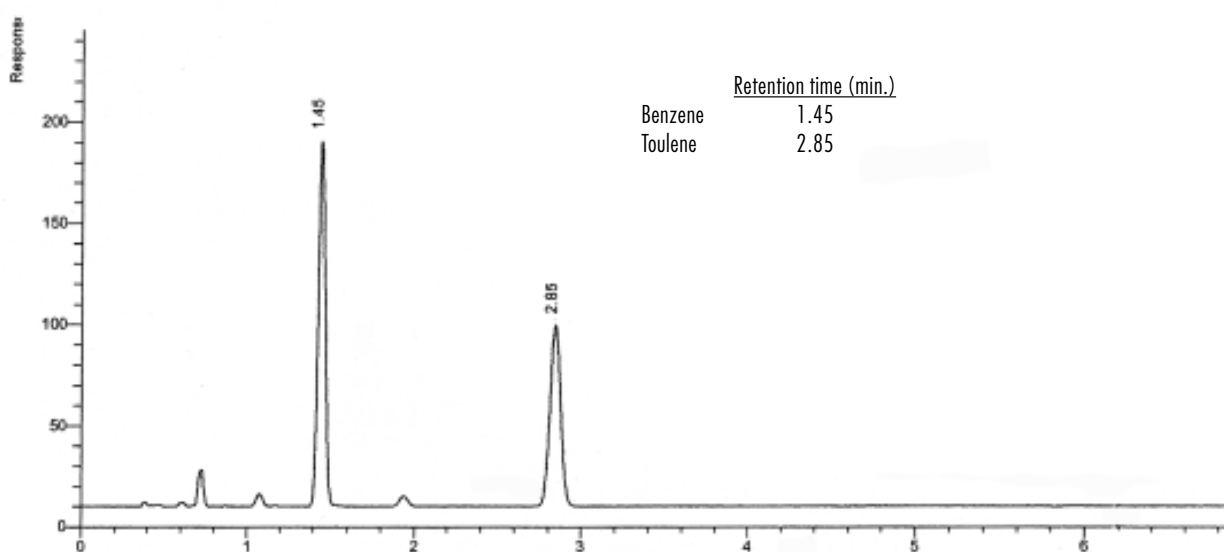
Reference	Description
TR-132110	2t Sampler for Static Head Space mod. 5060 (syringe not included)
HA-81343	Syringe Hamilton 1 ml. 1001 LTN point style 5
HA-81443	Syringe Hamilton 2,5 ml. 1002 LTN point style 5

### Chromatographic parameters

Column: **TRB-1**, P/N TR-113015  
 Dimensions: 15m x 0,53mm x 3µm  
 Injection: 0,7 ml, head space, (split 1:2), 150°C  
 Carrier gas: He, 4psi (27.6 kPa)  
 Oven temperature: 60°C (10 min.)  
 Detector: FID, 250°C  
 Sample: 5ml in 10ml vials (25ppm benzene/toluene in water)

### Headspace conditions

10ml vials, P/N CC-10-CV  
 Cap with blue silicone/PTFE seal P/N CC-20-ST3  
 Heating block temperature: 75°C  
 Equilibrium time: 30 minutes  
 Sampling time: 30 seconds  
 Syringe used: 1ml (1001 LTN, pst 5, P/N HA-81343)  
 Sampled volume: 0,7ml





# Headspace Vials & Accesories



CC-C4020-210 CC-C4020-2

## Headspace Vials

- 20 mm crimp finish is beveled for a tighter seal.
- Borosilicate glass
- Flat bottom vials feature a slightly longer neck - custom fit for Carlo Erba and Agilent.
- Rounded bottom vials are specifically designed for Pekin-Elmer; also use with Tekmar and Varian.

Reference 100/pk	Ref. 1000/cs	Vial	Volume	Dimmensions
CC-C4020-20/P	CC-C4020-20	Flat Bottom	20 ml	23 x 75 mm
CC-C4020-10/P	CC-C4020-10	Flat Bottom	10 ml	23 x 46 mm
CC-C4020-2/P	CC-C4020-2	Rounded Bottom	20 ml	23 x 75 mm
CC-C4020-210/P	CC-C4020-210	Rounded Bottom	10 ml	23 x 46 mm



## Headspace 20 mm Crimp Seals

- Use with all Headspace vials

References 1000/cs	Seal Description
CC-C4020-3A	One-Piece unlined 20 mm aluminium crimp seals only
CC-C4020-6A	One-Piece pressure release unlined 20 mm crimp seals only. Pressure will vent when a 3 bar +/- 0.5 rating is exceeded within the vial



## Headspace 20 mm Crimp Seals with Septa

- Pre-assembled 20 mm crimp seals with septa
- Ready-to-use with any Headspace vials

Reference 100/pk	Ref. 1000/cs	Vial	Volume	Dimmensions
CC-C4020-32A/P	CC-C4020-32A	Tan PTFE/White Silicone	Regular	- 60 to 125°C
CC-C4020-32AP/P	CC-C4020-32AP	Tan PTFE/White Silicone	Pressure Release	- 60 to 125°C
CC-C4020-34A/P	CC-C4020-34A	Ivory PTFE/Red Rubber	Regular	- 40 to 100°C
CC-C4020-34AP/P	CC-C4020-34AP	Ivory PTFE/Red Rubber	Pressure Release	- 40 to 100°C
CC-C4020-36A/P	CC-C4020-36A	Gray PTFE/Black Butyl Molded Septa	Regular	- 40 to 125°C
CC-C4020-36AP/P	CC-C4020-36AP	Gray PTFE/Black Butyl Molded Septa	Pressure Release	- 40 to 125°C



## Headspace 20 mm Septa

Reference 100/pk	Ref. 1000/cs	Septa	Temp. Range
CC-C4020-30/P	CC-C4020-30	Gray Butyl Stopper	-20 to 120°C
CC-C4020-32/P	CC-C4020-32	Tan PTFE/White Silicone	-60 to 125°C
CC-C4020-34/P	CC-C4020-34	Ivory PTFE/Red Rubber	-40 to 100°C
CC-C4020-36/P	CC-C4020-36	Gray PTFE Black Butyl Molded Septa	-40 to 125°C



## 20 mm Crimping & Decapping Tools

- For Headspace vials and any 20 mm crimp seals

References	Description	Pk
CC-C4020-100	Manual Crimper, 20 mm	1
CC-C4020-101	Decapping Pliers, 20 mm	1
CC-C4020-102	Manual Decrimper, 20 mm	1