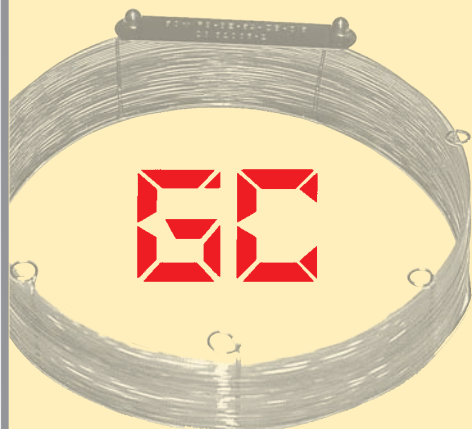


30
1985-2015
Anniversary

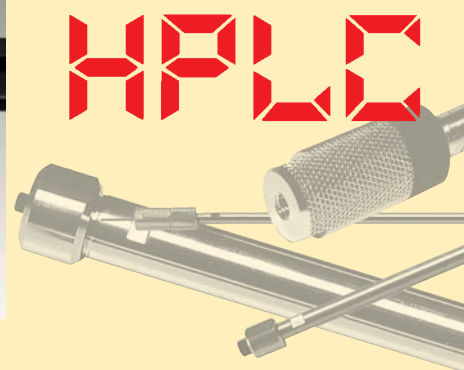
**Catalog
2016 - d**



CHROMATOGRAPHIE SERVICE



Consumables



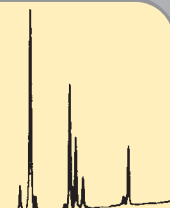
Test our efficiency, because...

...Service is our Power



CS

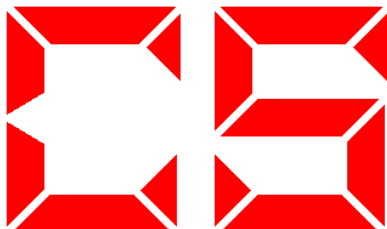
– Chromatographie Service GmbH



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E-Mail: info@cs-chromatography.com · Web: <http://www.cs-chromatography.com>

Company Profile



CS-Chromatographie Service GmbH was founded in 1985 and is working in its own company building since March 1996 in Langerwehe, Germany, a small town in the western part of Germany near Dutch and Belgium border.

In the production center, assisted by the own research and development groups, we manufacture:

Columns for High Performance Liquid Chromatography (HPLC)

Own trade names: **MultoHigh[®]**, **Multohyp**, **Multospher[®]**, **Multosorb**, **MultoKrom[®]**, **sCOre**



Fused Silica Columns for Capillary Gas Chromatography (GC)

Own trade names: **FS-Supreme**, **FS-CYCLODEX[®]**, **FS-EnantioSELECT[®]**, **FS-NanoPLOT[®]**



Packed Columns for Gas Chromatography (GC)

Columns for Capillary Electrophoresis (CE)

Derivatization Agents for GC, Test Mixtures for GC

INNO-Sil[®]-Glass Wool and **INNO-Sil[®]**-deactivated GC-Liner for highest inertness.

Exclusive at CS: Regeneration of GC Liners

We also deliver a wide range of Accessories for the Chromatography Laboratory:

Vials, Crimp, Snap and Screw Caps, Caps & Seals, Vial Racks & Container, Crimper and Decapper
Gas Cleaning Systems, Gas Pipes, Gas Valves, Gas Flowmeter, Septa, Liner

Syringe Filters, Solid Phase Extraction, Detector-Lamps and HPLC Pump Accessories

Tubing, Fittings, Valves, Unions, Microliter Syringes, Column Oven for HPLC

Products from Hamilton, Upchurch, Varian, VICI/Valco, Agilent and other Chromatography Suppliers

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Do not hesitate to contact us or give comments to our catalog and products, because

..... **Service is our Power !**

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Gas Chromatography with **ES** - Fused Silica Capillary Columns



FS-Supreme-5ms First high-temperature stable and MS-suitable GC-phase of a German capillary column producer

FS-Supreme-5ms/H 53 Analysis of Mineral Oil/Hydrocarbons up to 360°C

FS-Supreme-5ms/H 53-HT Analysis of Mineral Oil/Hydrocarbons up to 400°C

Columns available in Fused Silica or Stainless Steel!
Further Information and Chromatograms on Page 6.

FS-Supreme-5ms Plus

5-fold lower column bleed!

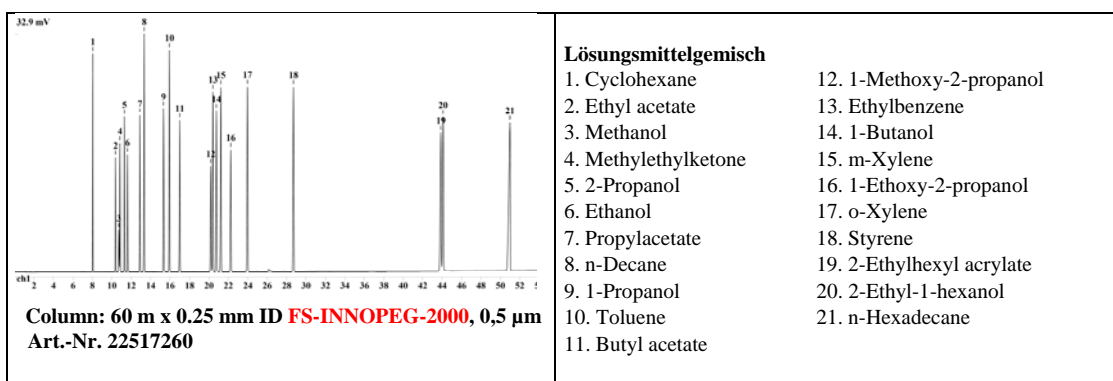
The development of our high-temperature stable GC/MS phase is characterized by extremely low column bleed. We obtain the high phase stability by optimizing the process steps in the production column
 (Deactivation, configuration, chemical bonding, conditioning)



FS-Supreme-20ms the next silphenylene phase of our R & D-Department!
 An interesting slightly polar phase for separation of e.g. Volatiles, Flavors etc.

CS-624 The well-known 6%-Cyanopropylsiloxane phase for EPA-Method 624

INNOPEG-2000 Stable, high polar Polyethylene glycol for separation of polar compounds



INNOPEG-FFAP Stable, high polar Polyethylene glycol for separation of free fatty acids



FS-CYCLODEX® Chiral GC-Phases based on derivatized cyclodextrines solved in a middle polar polysiloxane

Fast GC **Shorter and Faster: this is the Maxim for Fast-GC**
 Up to 10 times faster with the same separation efficiency.



EnantioSELECT® **Double-Select-Technology – a new dimension in gas chromatographic separation of Enantiomers.**



NanoPLOT® **World first: GC separation power of Nanotechnology**
NanoPLOT® TH1 particularly suitable for Alkane C1 to C4

Table 1: Selection Help Desk for Fused Silica Capillary Columns

Phase	Chemical Name	McReynolds Constants ¹⁾					equivalent to: (same or similar phase)	preferentially used for:	recommended CS column
		X'	Y'	Z'	U'	S'			
OV-1	100 methyl silicone, gum	16	55	44	65	42	BP-1, CP-Sil 5, DB-1, HP-1, RSL 150, SPB-1	triglycerides TMS-carboxylic acid TMS-comp., general (universal phase)	232 016 232 017 232 017
SE-30	100 methyl silicone, gum	15	53	44	64	41			
<i>Supreme-5ms</i>	silphenylene phase analog 5%-phenyl/95%-methyl silicone	30	76	27	86	51	DB-5ms, HP-5ms VF-5ms, BPX5 Rtx-5MS	PAHs, PCBs, pesticides, PAHs (TWV, EPA) PAHs (complex samples)	225 450 225 45160 232 450 225 450/451
SE-54	94% methyl silicone, gum 5% phenyl 1% vinyl	33	72	66	99	67	BP-5, CP-Sil 8, DB-5, HP-5, RSL-200, SPB-5	phenols, PCBs pesticides, volatile halogenated hydrocarbons	225 054 225 051 232 057
<i>Supreme-5ms /H 53 -/H 53-HT 5ms Plus</i>	Silphenylene phase like 5%-phenyl/95%-methyl	30	76	27	86	51		Mineral Oil-HC H 53	225 43715 225 43730
CS-624	6% Cyanopropylphenyl- 94%-methylsilicone	40	125	106	160	96	DB-624, Rtx-624, CP-624, BP-624	volatiles EPA method 624	232 14330 253 14460
OV-1301	6% Cyanopropylphenyl- 94%-methylsilicone	40	125	106	160	96	DB-1301, HP-1301 Rtx-1301	volatiles	232 14230 232 14260
<i>Supreme-20ms</i>	silphenylene phase like 20%-phenyl/80%-methyl	67	116	117	174	131	Rtx-20, SPB-20, VOCOL	volatile components, flavors, aromatic compounds	225 43050 232 43130 232 43025
OV-1701	86% methyl silicone 7% phenyl 7% cyanopropyl	67	170	153	228	171	BP-10, CP-Sil 19, DB-1701, RSL- 300,SPB-7	aromatic compounds, phenols volatile halogenated hydrocarbons, PCBs, pesticides	232 059 225 060 232 060
CW 20M	polyethylene glycol MM = 20000 (PEG 20000)	322	536	368	572	510	BP-20, DB-Wax, Supelcowax 20	alcohols volatile polar compounds	125 071/072 132 071/072
<i>INNOPEG-1000</i>	cross-linked polyethylene glycol	344	646	417	626	593	HP-Innowax, DB-WAXetr	alcoholic comp, solvents polar compounds	215 16712 225 16730
<i>INNOPEG-2000</i>	cross-linked polyethylene glycol	331	555	379	544	572	HP-Innowax, CP-Wax 52	Solvents polar compounds	225 17260
<i>INNOPEG-FFAP</i>	cross-linked, esterified polyethylene glycol	314	566	376	534	563		free carboxylic acids, FAME	225 17430 225 17430
FFAP	PEG 20000 partial esterified with 2-nitro terephthalic acid	340	580	397	602	627	AT-1000, SP-1000, DB-FFAP, OV-351 Superox-FA	FAME free carboxylic acid (up to C ₁₀) BTX compounds solvent mixtures	225 083 225 084 225 084/087

¹⁾ X' = benzene, Y' = 1-butanol, Z' = 2-pentanone, U' = nitro propane, S' = pyridine

Table 2: Standard Sizes:

mm ID	mm OD	Cage-Ø (mm)**	P/N NB*	P/N CB*	max. film thickness
0,10	0,27	160 (125)	110...	210...	0,5 µm
0,10	0,36	160 (125)	111...	211...	0,5 µm
0,15	0,36	160 (125)	115...	215...	0,5 µm
0,18	0,36	160 (125)	116...	216...	0,5 µm
0,20	0,30	160 (125)	118...	218...	1 µm
0,20	0,36	160 (125)	120...	220...	1 µm
0,25	0,36	160 (125)	125...	225...	1 µm
0,32	0,44	160 (125)	132...	232...	5 µm
0,53	0,68	190 (160)	153...	253...	5 µm

*NB = Non Bonded CB = Chemically Bonded

**Stainless steel cages Ø 125 mm for GC's with small furnace (without surcharge)! Please set "-E" at the end of the P/N. e.g. 225 450-E

CS-Quality warranty

All CS fused silica capillary columns are passing a very strict **quality control**.

Our FS capillary columns are wound on a stainless steel cage.

A test certificate, a test solution and hints about the use of FS capillary columns are also enclosed.

You will have the choice of an **inside diameter of 0.10 – 0.15 - 0.20 - 0.25 - 0.32 and 0.53 mm**

(and a **film thickness from 0.1 to 5 µm**).



CS - Fused Silica Capillary Columns



FS-Supreme 5ms -

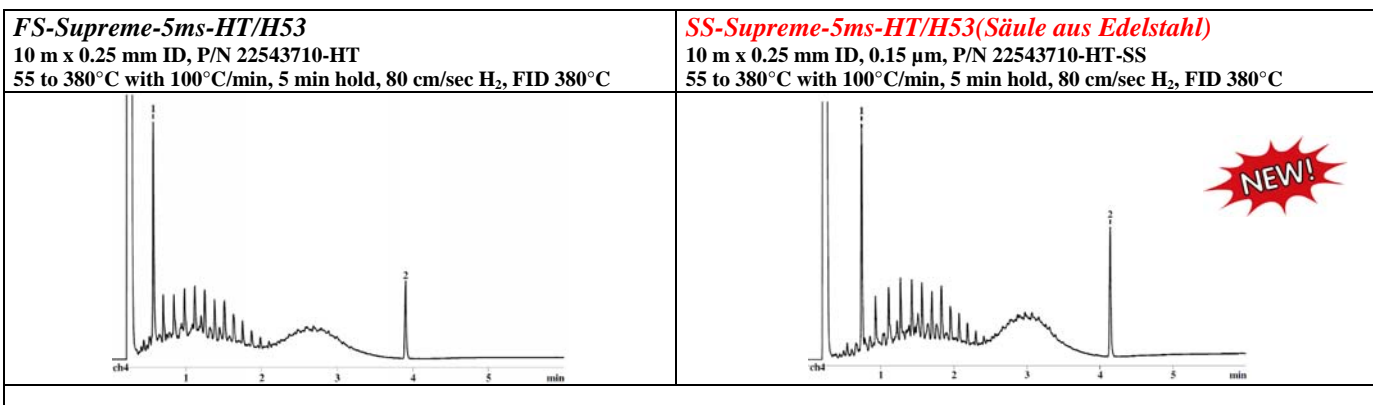
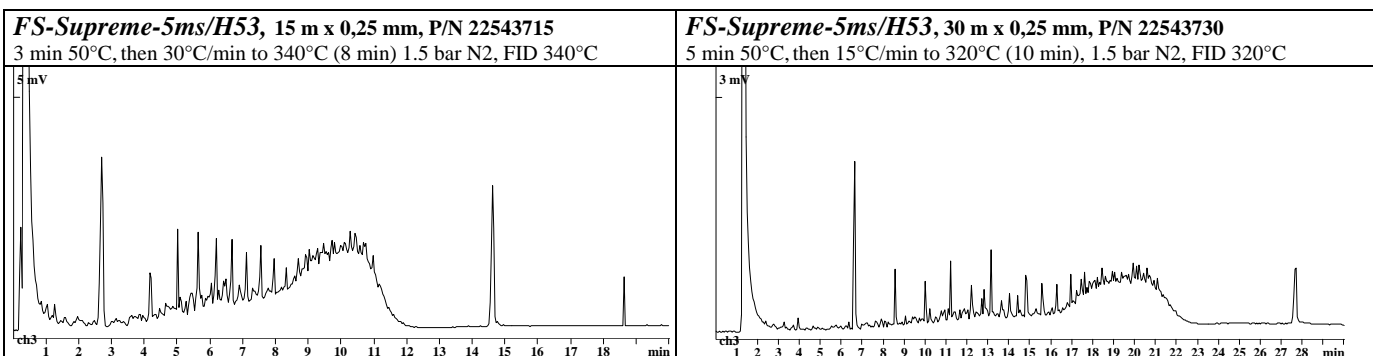
First high-temperature stable and MS-suitable GC-phase of a German capillary column producer! In the years 2012 to 2014 we developed the phase further:

FS-Supreme-5ms Plus-capillary columns – high stability, 5-fold column bleeding!

Phase	ID mm	df µm	Length 15 m		Length 30 m		Length 60 m	
			P/N	€ea.	P/N	€ea.	P/N	€ea.
FS-Supreme-5ms Plus 5% Phenyl-Silphenylene phase	0.25	0.1	225 487 15	335.00	225 487 30	505.00	225 487 60	840.00
		0.25	225 488 15	335.00	225 488 30	505.00	225 488 60	840.00
		0.5	225 489 15	335.00	225 489 30	505.00		
	0.32	0.1	232 487 15	335.00	232 487 30	505.00	232 487 60	840.00
		0.25	232 488 15	335.00	232 488 30	505.00	232 488 60	840.00
		0.5	232 489 15	335.00	232 489 30	505.00		
max. temperature: 340/360°C								

Hydrocarbon Index Determination following DIN EN ISO 9377-2:2000 (H53-Method)

Sample: Test mixture Mineral oil-KW/H53, P/N. 192018: 1. n-Dekane, Shell-Diesel, Shell-Mineral oil, 2. n-Tetracontane



Phase	ID mm	df µm	Length 10 m		Length 15 m		Length 30 m	
			P/N	€ea.	P/N	€ea.	P/N	€ea.
FS-Supreme-5ms/H53	0.25	0.1	-	-	22543715	283.00	22543730	497.00
FS-Supreme-5ms/H53-HT	0.25	0.1	-	-	22543715-HT	311.00	22543730-HT	529.00
FS-Supreme 5ms/H53-HT	0.32	0.1	-	-	23243715-HT	311.00	23243730-HT	529.00
FS-Supreme-5ms-HT/H53	0.25	0.15	22543710-HT	243.00	-	-	-	-
SS-Supreme-5ms-HT/H53	0.25	0.15	22543710-HT-SS	373.00	-	-	-	-

Standard GC- Capillary Columns

Phase	ID mm	df µm	Length 25 m		Length 30 m		Length 50 m		Length 60 m	
			P/N	€ea.	P/N	€ea.	mm	µm	P/N	µm
OV-1-CB 100% Dimethyl- silicone, gum max. temp.: 300/320°C	0.25	0.25	225 017	358.00	225 017 30	398.00	225 018	568.00	225 018 60	636.00
	0.32	0.25	232 017	358.00	232 017 30	398.00	232 018	568.00	232 018 60	636.00
	0.32	0.50	232 020	358.00	232 020 30	398.00	232 021	568.00	232 021 60	636.00
	0.32	1*	232 023	358.00	232 023 30	398.00	232 024	568.00	232 024 60	636.00
	0.53	1*	253 023	358.00	253 023 30	398.00	253 024	568.00	253 024 60	636.00
SE-54-CB 94%-Methyl- 5%-phenyl- 1%-vinylsilicon max. temp.: 300/320°C	0.25	0.25	225 050	358.00	225 050 30	398.00	225 051	568.00	225 051 60	636.00
	0.25	0.50	225 053	358.00	225 053 30	398.00	225 054	568.00	225 054 60	636.00
	0.25	1*	225 056	358.00	225 056 30	398.00	225 057	568.00	225 057 60	636.00
	0.32	0.25	232 050	358.00	232 050 30	398.00	232 051	568.00	232 051 60	636.00
	0.32	1*	232 056	358.00	232 056 30	398.00	232 057	568.00	232 057 60	636.00
	0.32	5*	232 104	358.00	232 104 30	398.00	232 105	568.00	232 105 60	636.00
FS-Supreme-5ms 5% Phenyl- Silphenylene phase max. temp.: 340/360°C	0.25	0.1	225 447	363.00	225 447 30	415.00	225 448	593.00	225 448 60	652.00
		0.25	225 450	363.00	225 450 30	415.00	225 451	593.00	225 451 60	652.00
		0.5	225 453	363.00	225 453 30	415.00	225 454	593.00	225 454 60	652.00
	0.32	0.1	232 447	363.00	232 447 30	415.00	232 448	593.00	232 448 60	652.00
		0.25	232 450	363.00	232 450 30	415.00	232 451	593.00	232 451 60	652.00
FS-Supreme-20ms 20% Phenyl- Silphenylene phase max. temp.: 340/360°C	0.25	0.1	225 428 25	363.00	225 428 30	415.00	225 428 50	593.00	225 428 60	652.00
		0.25	225 429 25	363.00	225 429 30	415.00	225 429 50	593.00	225 429 60	652.00
	0.32	0.1	232 428 25	363.00	232 428 30	415.00	232 428 50	593.00	232 428 60	652.00
CS-624 6%-Cyanopropyl siloxan max. temp.: 240/260°C	0.25	1.4	-	-	225 143 30	555.00	-	-	225 143 60	930.00
	0.32	1.8	-	-	232 143 30	555.00	-	-	232 143 60	930.00
	0.53	3	-	-	253 144 30	643.00	-	-	253 144 60	1144.00
OV-1701-CB 86%-Methyl- 7%-cyanopropyl- 7%-phenyl silicone max. temperature: 260°C	0.25	0.25	225 059	358.00	225 059 30	398.00	225 060	568.00	225 060 60	636.00
	0.25	0.50	225 062	358.00	225 062 30	398.00	225 063	568.00	225 063 60	636.00
	0.32	0.25	232 059	358.00	232 059 30	398.00	232 060	568.00	232 060 60	636.00
	0.32	0.50	232 062	358.00	232 062 30	398.00	232 063	568.00	232 063 60	636.00
	0.53	1*	253 065	358.00	253 065 30	398.00	253 066	568.00	253 066 60	636.00
CW 20M-CB Polyethylene glycol (PEG 20000) max. temp.: 220/240°C	0.25	0.25	225 068	358.00	225 068 30	398.00	225 069	568.00	225 069 60	636.00
	0.32	0.25	232 068	358.00	232 068 30	398.00	232 069	568.00	232 069 60	636.00
	0.32	0.50	232 071	358.00	232 071 30	398.00	232 072	568.00	232 072 60	636.00
	0.53	1*	253 074	358.00	253 074 30	398.00	253 075	568.00	253 075 60	636.00
FS-CS-Wax max. temp.: 240/250°C	0.25	0.25	-	-	225 177 30	608.00	-	-	-	-
	0.32	0.25	-	-	232 177 30	608.00	-	-	232 177 60	1036.00
INNOPEG-1000 max. temp.: 240/260°C	0.25	0.25	225 167 25	453.00	225 167 30	521.00	225 167 50	773.00	225 167 60	867.00
	0.32	0.25	232 167 25	453.00	232 167 30	521.00	232 167 50	773.00	232 167 60	867.00
INNOPEG-2000 Cross-linked PEG phase max. temp.: 260/280°C	0.25	0.25	225 171 25	453.00	225 171 30	521.00	225 171 50	773.00	225 171 60	867.00
	0.25	0.5	225 172 25	453.00	225 172 30	521.00	225 172 50	773.00	225 172 60	867.00
	0.32	0.25	232 171 25	453.00	232 171 30	521.00	232 171 50	773.00	232 171 60	867.00
INNOPEG-FFAP Cross-linked PEG phase max. temp.: 240/260°C	0.25	0.25	225 174 25	453.00	225 174 30	521.00	225 174 50	773.00	225 174 60	867.00
	0.25	0.5	225 175 25	453.00	225 175 30	521.00	225 175 50	773.00	225 175 60	867.00
	0.32	0.25	232 174 25	453.00	232 174 30	521.00	232 174 50	773.00	232 174 60	867.00
	0.32	0.5	232 175 25	453.00	232 175 30	521.00	232 175 50	773.00	232 175 60	867.00
FFAP-CB PEG 20000 partially esterified with 2-Nitroterephthalic acid max. temperature: 220°C	0.25	0.25	225 083	358.00	225 083 30	398.00	225 084	568.00	225 084 60	636.00
	0.25	0.50	225 086	358.00	225 086 30	398.00	225 087	568.00	225 087 60	636.00
	0.32	0.25	232 083	358.00	232 083 30	398.00	232 084	568.00	232 084 60	636.00
	0.32	0.50	232 086	358.00	232 086 30	398.00	232 087	568.00	232 087 60	636.00
	0.53	1*	253 089	358.00	253 089 30	398.00	253 090	568.00	253 090 60	636.00

*For df=1 columns we recommend a maximum temperature which is 20°C below the stated max. temperature.

For columns with 0.53 mm ID the maximum temperature is 20°C lower than the stated max. temperature.

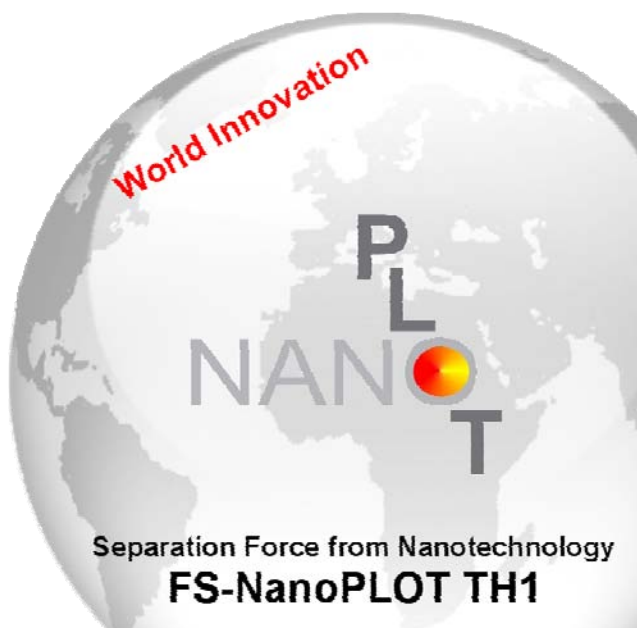
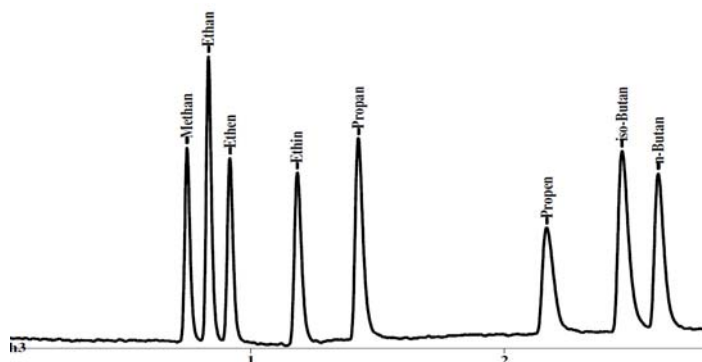
Other film thicknesses are available; prices are adapted to length and ID.

Fast GC- Capillary Columns Special GC Capillary Columns

Delivery program	ID mm	df µm	Length 10 m		Length 20 m	
			€ea.	P/N	mm	µm
OV-1-CB 100% Dimethyl silicone, gum max. temperature: 300/320°C	0.10	0.1	211 013	285.00	211 013 20	385.00
	0.15	0.1	215 013	285.00	215 013 20	385.00
	0.18	0.2	216 115	285.00	216 115 20	385.00
FS-Supreme-5ms 5% Phenyl-Silphenylene phase max. temperature: 340/360°C	0.10	0.1	211 447 10	285.00	211 447 20	385.00
	0.15	0.1	215 447 10	285.00	215 447 20	385.00
	0.18	0.2	216 443 10	285.00	216 443 20	385.00
INNOPEG-2000 Cross-linked PEG phase max. temperature: 260/280°C	0.10	0.2	211 169 10	285.00	211 169 20	385.00
	0.15	0.2	215 169 10	285.00	215 169 20	385.00
	0.18	0.25	216 171 10	285.00	216 171 20	385.00

* Now also available: stainless steel cages Ø125 mm for GC's with small furnace (without surcharge)!
Please set "-E" at the end of the P/N. e.g. 225 450-E

Using the advantages of Nanotechnology for GC - this is the approach of the new NanoPLOT® columns. Highest stability of optimized nano-layers allow for the use with MS detectors and unique high maximum temperatures. The TH1-phase is particularly suitable for hydrocarbons from C₁ to C₄.



Phase	ID mm	Length 10 m		Length 30 m		Length 60 m	
		P/N	€ea.	P/N	€ea.	P/N	€ea.
NanoPLOT® TH 1 max. temperature: 320 °C	0.25	22560110	575.00	22560130	750.00	22560160	1295.00

GC-Training

In the framework of the regional trade fairs "LAB-SUPPLY" we successfully provide the training "Basics of Gas Chromatography" since 2010. The four course units: basic concepts of gas chromatography - construction of GC equipment - column - GC in practice are suitable both for beginners and advanced. Detailed course materials are included in the fee.

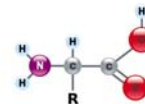
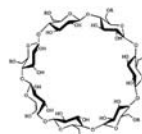
Terms 2017:

- Wednesday, 08.03.2017 in Frankfurt-Hoechst, Jahrhunderthalle (No Training Offer)
- Wednesday, 05.04.2017 in Leverkusen, Forum Leverkusen (With Training Offer)
- Thursday, 22.06.2017 in Berlin, Estrel Convention Center (With Training Offer)
- Wednesday, 23.08.2017 in Dresden, Maritim Hotel & Intern. Congress Center Dresden (With Training Offer)
- Wednesday, 20.09.2017 in Münster, Halle Münsterland (No Training Offer)
- Wednesday, 22.11.2017 in Hamburg, Messehalle Hamburg-Schnelsen (With Training Offer)

Each training and 9:00 am and will end at 3:30 pm.
To participate, we charge a nominal fee of 90,00 €incl. VAT,

More information and registration documents at www.cs-chromatographie.de

GC Capillary Columns for Enantiomer Separation



Double-Select-Technology:

combines different chiral selectors

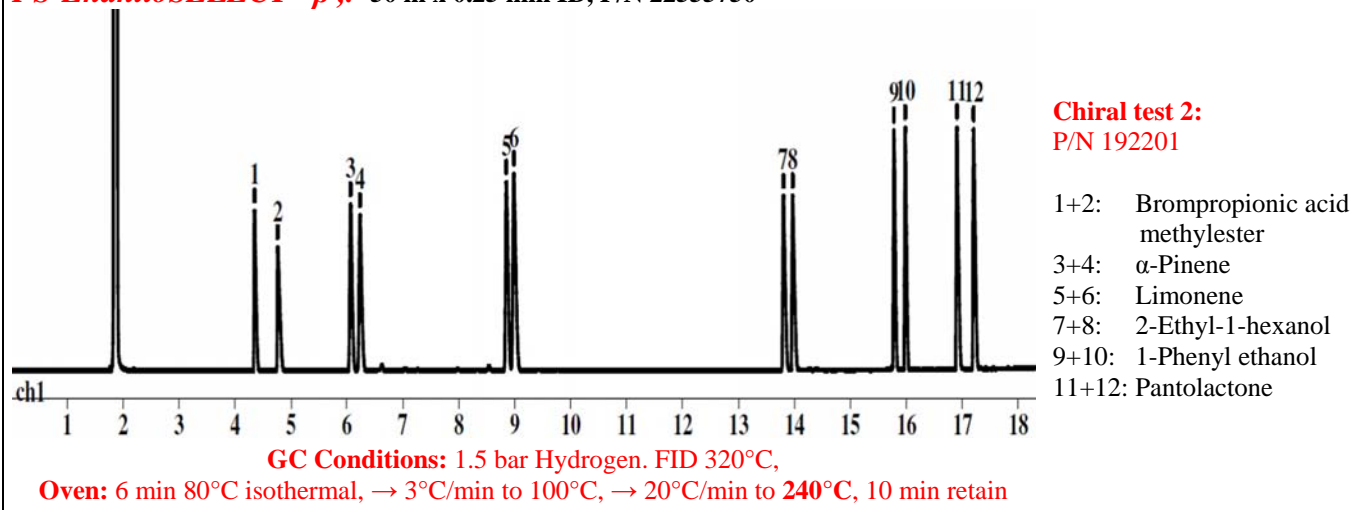
- Cyclodextrin-Selector
- Amino-Selector
- Chemically bonded to a Polysiloxane matrix

EnantioSELECT

EnantioSELECT[®] the first phase with Double Select Technology, which combines the selectivity spectrum of both common chiral selectors - Cyclodextrine and Amino Acid derivate. By an *in-situ* synthesis of the chiral selectors with the polysiloxane matrix a stability is achieved, which was not possible at chiral phases in past. This results also in a much higher maximum temperature.

Delivery program	ID		Length 25 m		Length 30 m		Length 50 m		Length 60 m	
	mm	µm	P/N	€ea.	P/N	€ea.	mm	µm	P/N	€ea.
EnantioSELECT[®] β 1	0.25	0.3	225 557 25	605.00	225 557 30	658.00	225 557 50	1056.00	225 557 60	1159.00
Max. Temp.: 260/280°C	0.32	0.3	232 557 25	711.00	232 557 30	785.00	232 557 50	1267.00	232 557 60	1417.00

FS-EnantioSELECT[®] β, 50 m x 0.25 mm ID, P/N 22555750



FS-CYCLODEX[®] Capillary Columns

Already since 1989 (as the first German producer) we develop and produce fused silica capillary columns for the gas chromatographic separation of enantiomers. Different derivatized cyclodextrines solved in a middle polar polysiloxane are used as separation phase. With our FS-CYCLODEX[®]-capillary columns the analysis of non-derivatized substances is possible thanks to the special deactivation.

Our booklet „FS-CYCLODEX[®] Capillary Columns“ which can be ordered for free contains further detailed information and more than 200 applications.

Product Range and Order Data:

Phase	ID mm	Length 25 m		Length 50 m	
		P/N	€ea.	P/N	€ea.
FS-CYCLODEX α-I/P (Permethy-α-Cyclodextrine)	0.25	125202	504.00	125203	898.00
	0.32	132202	504.00	132203	898.00
FS-CYCLODEX β-I/P (Permethy-β-Cyclodextrine)	0.25	125206	504.00	125207	898.00
	0.32	132206	504.00	132207	898.00
FS-CYCLODEX γ-I/P (Permethy-γ-Cyclodextrine)	0.25	125210	504.00	125211	898.00
	0.32	132210	504.00	132211	898.00
FS-CYCLODEX γ-II/P (Perpentyl-γ-Cyclodextrine)	0.25	125222	504.00	125223	898.00
	0.32	132222	504.00	132223	898.00
FS-CYCLODEX γ-III/P (Dimethyl-Acetyl-γ-Cyclodextrine)	0.25	125228	504.00	125229	898.00
	0.32	132228	504.00	132229	898.00

Capillary Columns other producer from

Of course we deliver all columns of other producers.

Please solicit your personal quotation!



Agilent Technologies
Innovating the HP Way




Agilent Technologies



Agilent Technologies
Innovating the HP Way

Agilent Technologies, Santa Clara, CA, USA, one of the leading companies in chromatography took over the capillary column producers J&W in 2000 and Chrompack/VARIAN in 2009.

 Agilent Technologies Innovating the HP Way	ID mm	df µm	Länge 15 m		Länge 30 m		Länge 60 m	
			Art.-Nr.	€St.	Art.-Nr.	€St.	Art.-Nr.	€St.
HP-1MS 100 % Methyl silicone	0.25	0.25	02819091S-931	370.00	02819091S-933	606.00	02819091S-936	1032.00
	0.32	0.25	02819091S-911	400.00	02819091S-913	654.00	02819091S-916	1123.00
HP-5MS equivalent zu: 5%Phenyl/95% methyl	0.25	0.1	02819091S-331	370.00	02819091S-333	606.00	02819091S-336	1032.00
	0.25	0.25	02819091S-431	370.00	02819091S-433	595.00	02819091S-436	1013.00
	0.32	0.25	-	-	02819091S-413	654.00	02819091S-416	1123.00
HP-INNOWax	0.25	0.25	02819091N-131	322.00	02819091N-133	526.00	02819091N-136	922.00
	0.32	0.25	02819091N-111	340.00	02819091N-113	568.00	02819091N-116	1012.00
DB-1	0.25	0.5	-	-	4122-103E	526.00	4122-106E	923.00
	0.32	0.25	4123-1012	340.00	4123-1032	568.00	4123-1062	1005.00
DB-1ms	0.25	0.25	4122-0112	370.00	4122-0132	606.00	4122-0162	1032.00
	0.32	0.25	4123-0112	400.00	4123-0132	654.00	4123-0162	1123.00
DB-5	0.25	0.25	4122-5012	313.00	4122-5032	526.00	4122-5062	923.00
	0.32	0.25	4123-5012	340.00	4123-5032	568.00	4123-5062	1005.00
DB-5ms	0.25	0.25	4122-5512	370.00	4122-5532	606.00	4122-5562	1032.00
	0.32	0.25	4123-5512	400.00	4123-5532	654.00	4123-5562	1123.00
DB-5ht	0.32	0.1	4123-5711	410.00	4123-5731	677.00	-	-
DB-17	0.25	0.25	4122-1712	313.00	4122-1732	526.00	4122-1762	923.00
DB-17ht	0.25	0.15	4122-1811	388.00	4122-1831	635.00	-	-
DB-17ms	0.25	0.25	4122-4712	373.00	4122-4732	611.00	4122-4762	1041.00
DB-35	0.25	0.25	-	-	4122-1932	525.00	4122-1962	924.00
	0.25	0.25	4122-3812	373.00	4122-3832	606.00	4122-3862	1032.00
DB-624	0.25	1.40	-	-	4122-1334	596.00	4122-1364	979.00
	0.32	1.80	-	-	4123-1334	648.00	4123-1364	1087.00
	0.53	3.00	-	-	4125-1334	738.00	4125-1364	1078.00
DB-1301	0.25	0.25	-	-	4122-1332	546.00	4122-1362	933.00
DB-1701	0.25	0.25	4122-0712	315.00	4122-0732	546.00	4122-0762	951.00
DB-Wax	0.25	0.25	4122-7012	313.00	4122-7032	528.00	4122-7062	922.00
	0.32	0.25	4123-7012	339.00	4123-7032	568.00	4123-7062	1005.00
GS-Q	0.32	-	-	-	4113-3432	648.00	-	-
	0.53	-	4115-3412	479.00	4115-3432	713.00	-	-
GS-GasPro	0.32	-	4113-4312	667.00	4113-4332	799.00	4113-4362	1207.00

Art.-Nr.	Länge x ID x Film [m x mm x µm]	Typ	Preis €St.	Art.-Nr.	Länge x ID x Film [m x mm x µm]	Typ	Preis €St.
4758912	30 x 0.25 x 0.25	VF-1ms	606.00	4758982	30 x 0.25 x 0.25	VF-17ms	611.00
4758924	30 x 0.32 x 0.25	VF-1ms	654.00	4758990	30 x 0.32 x 0.25	VF-17ms	660.00
4758941	25 x 0.25 x 0.25	VF-5ms	528.00	4758822	30 x 0.25 x 0.25	VF-23ms	625.00
4758944	30 x 0.25 x 0.25	VF-5ms	597.00	4758827	30 x 0.32 x 0.25	VF-23ms	673.00
4758947	50 x 0.25 x 0.25	VF-5ms	944.00	4758877	30 x 0.25 x 0.25	VF-35ms	606.00
4758960	60 x 0.25 x 0.25	VF-5ms	1032.00	4758882	30 x 0.32 x 0.25	VF-35ms	659.00
4758955	30 x 0.32 x 0.25	VF-5ms	654.00	4759102I5	30 x 0.25 x 1.4	VF-624ms	603.00
4758961	60 x 0.32 x 0.25	VF-5ms	1123.00	4759104	30 x 0.32 x 1.8	VF-624ms	703.00

Ohio Valley-Products





Ohio Valley Speciality Company, Marietta, Ohio, USA, since 1966 producer of products for Gas-Chromatography, well-known as manufacturer of OV-Silicone phases, is now represented by the CS-Chromatographie Service GmbH in Germany. The product portfolio also includes Fused Silica Capillary Columns, packed GC-columns and accessories for Gas-Chromatography so as Ferrules, Septa, Liner etc. and thus ideally complement the CS-own delivery program.

Extract from the delivery program „Fused Silica Capillary Columns“

Phase	Max. Temp.	ID mm	df µm	Length 30 m		Length 60 m	
				P/N	€ea.	P/N	€ea.
OV-1ms 100%-Dimethyl silicone, Low Bleed-MS	330/360°C	0,25	0,25	185130-3902	497.90	-	-
		0,32	0,25	185130-4602	524.80	-	-
OV-5ms 5%-Phenyl-95%-Dimethyl silicone, Low Bleed-MS	330/360°C	0,25	0,25	185530-3902	497.90	-	-
		0,32	0,25	185530-4602	524.80	-	-
OV-1301 6%-Cyanopropylphenyl-94%-methyl silicone	280/300°C	0,25	0,25	185830-2502	431.55	185860-2502	767.55
		0,32	0,25	185830-3202	464.75	185860-3202	823.60
OV-1701 14%-Cyanopropylphenyl-86%- methyl silicone	280/300°C	0,25	0,25	185430-2502	431.55	185460-2502	767.55
		0,32	0,25	185430-3202	464.75	185460-3202	823.60
OV-624 6%-Cyanopropylphenyl-94%- methyl silicone	260°C	0,25	1,4	185630-2514	459.50	185660-2514	734.40
		0,32	1,8	185630-3207	504.15	185660-3207	800.75
		0,53	3,0	185630-5307	588.10	185660-5307	1092.20
OV-20 20%-Phenyl-80%- Dimethyl silicone	300/320°C	0,25	0,25	1852030-2502	431.55	1852060-2502	767.55
		0,32	0,25	1852030-3202	464.75	1852060-3202	823.60
OV-35 35%-Phenyl-65%- Dimethyl silicone n	300/320°C	0,25	0,25	1853530-2502	431.55	1853560-2502	767.55
		0,32	0,25	1853530-3202	464.75	1853560-3202	823.60
OV-17 50%-Phenyl-50%- Dimethyl silicone	300/320°C	0,25	0,25	1851730-2502	686.50	-	-
		0,32	0,25	1851730-3202	935.40	-	-
OV-225 25%-Cyanopropyl-25%-phenyl-50%- methyl silicone	220/240°C	0,25	0,25	185730-2502	701.55	-	-
		0,32	0,25	185730-3202	935.40	-	-
OV-351 PEG 20000 esterified with 2-Nitroterephthalic acid	250°C	0,25	0,25	185330-2502	431.55	185360-2502	907.05
		0,32	0,25	185330-3202	464.75	185360-3202	973.30

**You find the complete delivery program of Ohio Valley by www.ovsc.com
Current prices and order information in our Online-Shop by www.cs-chromatographie.de**

	ID mm	df µm	Length 15 m		Length 30 m		Length 60 m	
			P/N	€ea.	P/N	€ea.	P/N	€ea.
RTX-5ms	0.25	0.25	02412620	388.00	02412623	648.00	02412626	1010.00
	0.32	0.25	02412621	414.00	02412624	681.00	02412627	1100.00
RTX-624	0.25	1.4	-	-	02410968	650.00	02410969	1040.00
	0.32	1.8	-	-	02410970	696.00	02410972	1070.00
RTX-2330	0.25	0.20	-	-	02410723	611.00	02410726	1080.00

	Anwendung	ID mm	df µm	Length 25 m		Length 50 m	
				P/N	€ea.	P/N	€ea.
HT 5	nonpolar high-temperature column especially used for C5 - C120 analytics	0.22	0.10	454632	630.00	-	-
		0.32	0.10	454642	712.00	-	-
HT 8	weak polar, ideal for analytics of PCB's	0.22	0.25	454675	641.00	454676	1051.00
		0.32	0.25	454680	712.00	-	-
BPX 5	nonpolar phase, very low bleeding, ideal for GC/MS and ECD	0.22	0.25	454113	610.00	454114	1051.00
		0.32	0.25	454119	589.00	-	-

Deactivated Fused Silica Guard Columns, (without cage)

uncoated, non-deactivated capillaries see page 11.

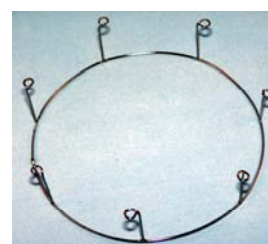
Phase	ID mm	OD mm	Length P/N	1 m €ea.	Length P/N	5 m €ea.	Length P/N	10 m €ea.	Length P/N	25 m €ea.
FS Columns uncoated	0.25	0.36	125180	5.55	125180-05	27.55	125180-10	49.00	125180-25	113.00
	0.32	0.44	132180	5.55	132180-05	27.55	132180-10	49.00	132180-25	113.00
	0.53	0.68	153180	9.80	153180-05	49.00	153180-10	81.50	153180-25	191.00
Methyl-Sil Deactivation	0.10	0.27	110184	12.00	110184-05	53.10	110004	103.00	110005	205.00
	0.20	0.30	118184	12.00	118184-05	53.10	118004	103.00	118005	205.00
	0.20	0.36	120184	12.00	120184-05	53.10	120004	103.00	120005	205.00
	0.25	0.36	125184	8.15	125184-05	38.30	125004	70.50	125005	141.20
	0.32	0.44	132184	9.30	132184-05	43.90	132004	81.40	132005	162.30
	0.53	0.68	153184	12.00	153184-05	53.10	153004	103.00	153005	205.00
Phenyl-Sil Deactivation	0.10	0.27	110186	12.00	110186-05	53.10	110006	103.00	110007	205.00
	0.20	0.30	118186	12.00	118186-05	53.10	118006	103.00	118007	205.00
	0.20	0.36	120186	12.00	120186-05	53.10	120006	103.00	120007	205.00
	0.25	0.36	125186	8.15	125186-05	38.30	125006	70.50	125007	141.20
	0.32	0.44	132186	9.30	132186-05	43.90	132006	81.40	132007	162.30
	0.53	0.68	153186	12.00	153186-05	53.10	153006	103.00	153007	205.00
CW- (PEG) Deactivation	0.10	0.27	110187	12.00	110187-05	53.10	110008	103.00	110009	205.00
	0.20	0.36	120187	12.00	120187-05	53.10	120008	103.00	120009	205.00
	0.25	0.36	125187	8.15	125187-05	38.30	125008	70.50	125009	141.20
	0.32	0.44	132187	9.30	132187-05	43.90	132008	81.40	132009	162.30
	0.53	0.68	153187	12.00	153187-05	53.10	153008	103.00	153009	205.00
Cyanopropyl- Deactivation	0.10	0.27	110189	12.00	110189-05	53.10	110160	103.00	110161	205.00
	0.20	0.36	120189	12.00	120189-05	53.10	120160	103.00	120161	205.00
	0.25	0.36	125189	8.15	125189-05	38.30	125160	70.50	125161	141.20
	0.32	0.44	132189	9.30	132189-05	43.90	132160	81.40	132161	162.30
	0.53	0.68	153189	12.00	153189-05	53.10	153160	103.00	153161	205.00
Trifluoropropyl- Deactivation	0.10	0.27	110188	12.00	110188-05	53.10	110163	103.00	110164	205.00
	0.20	0.36	120188	12.00	120188-05	53.10	120163	103.00	120164	205.00
	0.25	0.36	125188	8.15	125188-05	38.30	125163	70.50	125164	141.20
	0.32	0.44	132188	9.30	132188-05	43.90	132163	81.40	132164	162.30
	0.53	0.68	153188	12.00	153188-05	53.10	153163	103.00	153164	205.00

On request we deliver these guard columns coiled on a cage.

For this we charge additional:

€15.00/10m, €25.00/25m, €35.00/50m plus price for the cage.

Cages for FS capillary columns you find on page 14.



Guard Column Combinations consisting of: 3 m FS Guard Column + 1 pc. Universal Single-Use Connector

P/N	Length x ID	Deactivation	for main column:	€ea.
125904	3 m x 0.25 mm ID	FS Methyl-Sil	OV-1-PONA, OV-1, SE-30	25.00
132904	3 m x 0.32 mm ID	dto.		28.00
153904	3 m x 0.53 mm ID	dto.		37.00
125906	3 m x 0.25 mm ID	FS Phenyl-Sil	SE-54, <i>Supreme-5ms, -20ms</i> CS-35, CS-50, OV-1701, CS-624 CYCLODEX, EnantioSELECT	25.00
132906	3 m x 0.32 mm ID	dto.		28.00
153906	3 m x 0.53 mm ID	dto.		37.00
125908	3 m x 0.25 mm ID	FS CW Deactivation	CW 20M, FFAP <i>INNOPEG-1000/-2000/-FFAP</i>	25.00
132908	3 m x 0.32 mm ID	dto.		28.00
153908	3 m x 0.53 mm ID	dto.		37.00
125910	3 m x 0.25 mm ID	FS Cyanopropyl Deactivation	OV-225	25.00
132910	3 m x 0.32 mm ID	dto.		28.00
153910	3 m x 0.53 mm ID	dto.		37.00
125912	3 m x 0.25 mm ID	FS Trifluoropropyl Deactivation	OV-210	25.00
132912	3 m x 0.32 mm ID	dto.		28.00
153912	3 m x 0.53 mm ID	dto.		37.00

Fused Silica Capillary Columns, uncoated columns, (without treatment, without cage)



for Capillary Electrophoresis (CE) for Gas Chromatography (GC) for Liquid Chromatography (LC) for Nano LC

Please add to the P/N the appropriate appendix adapted to the respective column length. For example P/N 150180-25 for a 25 m column with 50 µm ID and 150 µm OD.

Thereby this P/N-system becomes EDP capable.

Phase UV=transparent **Appendix →	ID µm	OD µm	P/N	Price in €/m at purchase of:			
				1 - 9 m -01	10 - 24 m -10	25 - 49 m -25	50 - 99 m -50
	2	150	100002150	21.00	15.50	12.50	11.50
	5	150	100005150	21.00	15.50	12.50	11.50
	5	363	100005375	32.00	25.00	22.00	19.00
	10	150	100010150	21.00	15.50	12.50	11.50
	10	363	100010375	32.00	25.00	22.00	19.00
	15	150	100015150	21.00	15.50	12.50	11.50
	15	363	100015375	32.00	25.00	22.00	19.00
	20	90	100020090	28.00	22.00	17.00	15.00
	20	150	100020150	21.00	15.50	12.50	11.50
	20	363	100020375	28.00	22.00	17.00	15.00
	25	150	100025150	21.00	15.50	12.50	11.50
CE Standard dimension	25	360	102180	18.00	13.00	10.50	9.50
	30	150	100030150	21.00	15.50	12.50	11.50
	30	363	100030375	28.00	22.00	17.00	15.00
	40	105	100040105	32.00	25.00	21.00	18.00
	40	150	100040150	21.00	15.50	12.50	11.50
	40	363	100040375	32.00	25.00	22.00	19.00
	50	150	150180	21.00	15.50	12.50	11.50
	50	190	100050190	21.00	15.50	12.50	11.50
CE Standard dimension	50	360	105180	18.00	13.00	10.50	9.50
uncoated UV*	50	363	100050375UV	56.50	51.50	-	-
	75	150	170180	21.00	15.50	12.50	11.50
	75	190	100075190	21.00	15.50	12.50	11.50
CE Standard dimension	75	360	107180	18.00	13.00	10.50	9.50
uncoated UV*	75	363	107180UV	56.50	51.50	-	-
	100	164	100100170	21.00	15.50	12.50	11.50
	100	193	100100200	21.00	15.50	12.50	11.50
	100	238	100100245	21.00	15.50	12.50	11.50
GC Standard dimension	100	270	110180	11.00	9.00	7.00	6.50
uncoated UV*	100	363	111180UV	56.50	51.50	-	-
CE Standard dimension	100	360	111180	18.00	13.00	10.50	9.50
	150	260	100150260	21.00	15.50	12.50	11.50
	150	360	115180	18.00	13.00	10.50	9.50
	150	363	100150375	28.00	22.00	17.00	15.00
	180	360	100180350	21.00	15.50	12.50	11.50
	200	300	118180	11.00	9.00	7.00	6.50
GC Standard dimension	200	360	120180	11.00	9.00	7.00	6.50
GC Standard dimension	250	360	125180	5.35	4.75	4.50	4.35
GC Standard dimension	320	440	132180	5.35	4.75	4.50	4.35
GC Standard dimension	530	680	153180	9.50	7.90	7.40	7.00

*= UV permeable fused silica capillaries with teflon coating, transmission 96 %, max. temp. 160°C.

**= Appendix → see page 93

On request columns from a length of at least 10 m can be delivered on a cage for an extra charge (see page 12).

Cages are on page 16.

Coated and deactivated fused silica columns see pages 12 and 14.

Fused Silica Capillary Columns for Capillary Electrophoresis (without cage)

Standard Sizes:

P/N 102...	25 µm ID x 360 µm OD
P/N 105...	50 µm ID x 360 µm OD
P/N 107...	75 µm ID x 360 µm OD
P/N 111...	100 µm ID x 360 µm OD
P/N 115...	150 µm ID x 360 µm OD

for LC/MS:

P/N 150...	50 µm ID x 150 µm OD
P/N 170...	75 µm ID x 150 µm OD



Phase	ID µm	OD µm	P/N	Price in €m at purchase of:			
				1 - 9 m -01	10 - 24 m -10	25 - 49 m -25	50 - 99 m -50
*Appendix →							
Uncoated capillaries see page 13.							
Methyl-Sil Deactivation	25	360	102184	24.50	20.00	16.50	-
	50	150	150184	24.50	20.00	-	-
	50	360	105184	24.50	20.00	16.50	-
	75	150	170184	24.50	20.00	-	-
	75	360	107184	24.50	20.00	16.50	14.50
Phenyl-Sil Deactivation	100	360	111184	24.50	20.00	16.50	14.50
	25	360	102186	24.50	20.00	16.50	-
	50	150	150186	24.50	20.00	-	-
	50	360	105186	24.50	20.00	16.50	-
	75	150	170186	24.50	20.00	-	-
CW-(PEG) Deactivation	75	360	107186	24.50	20.00	16.50	14.50
	100	360	111186	24.50	20.00	16.50	14.50
	25	360	102187	24.50	20.00	16.50	-
	50	360	105187	24.50	20.00	16.50	-
	75	360	107187	24.50	20.00	16.50	14.50
ODS-Sil- (C18) Deactivation	100	360	111187	24.50	20.00	16.50	14.50
	25	360	102190	24.50	20.00	16.50	-
	50	360	105190	24.50	20.00	16.50	-
	75	360	107190	24.50	20.00	16.50	14.50
	100	360	111190	24.50	20.00	16.50	14.50
Methacrylates Deactivation	25	360	102191	24.50	20.00	16.50	-
	50	360	105191	24.50	20.00	16.50	-
	75	360	107191	24.50	20.00	16.50	-
	100	360	111191	24.50	20.00	16.50	-
	Carbowax 20M Coating	50	360	105067	52.00	39.75	-
75		360	107067	52.00	39.75	-	-
100		360	111067	52.00	39.75	-	-
Carbowax 20M is a chemical bonded coating of polyethylene glycol 20,000 like the corresponding GC Capillary Column.							
Polyacrylamide Coating	50	360	105192	70.00	53.00	-	-
	75	360	107192	70.00	53.00	-	-
	100	360	111192	70.00	53.00	-	-

On request columns from a length of at least 10 m can be delivered on a cage for an extra charge (see page 12). Column cages for FS capillaries you find on page 16.

* = Appendix → see page 93

Special custom-made deactivations and coatings are possible – please contact us!

P/N 102105: Making a 8 mm wide detector window for 13.00 €ea.

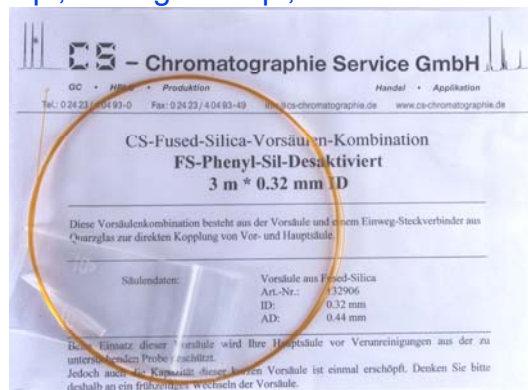
Accessories for Guard Columns

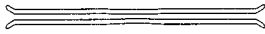






Problem identified – Problem solved:

Protect your valuable fused silica capillary column by using a guard column!

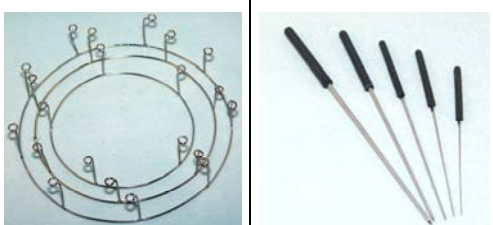

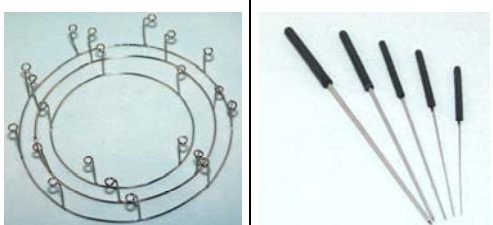
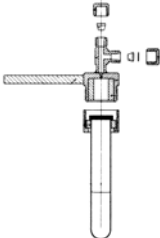




The guard column

- detains impurities
- extends the life time of your column
- is easily attached to your main column
- is particularly inexpensive



P/N	Description		€ea.
100151	Universal Single-Use-Connectors, Quartz pk/10 for connection of FS capillaries ID 0.20 to 0.53 mm (OD 0.30 to 0.75 mm)		45.70
100151-D	Universal Single-Use-Connectors, Quartz pk/10 like prior, but deactivated	Information about the deactivation process see page 22	69.00
Defined Single-Use-Connectors, deactivated			
0232020LD	PressFit Connenctor 0,20 x 0,20 mm ID	Color code: lila /lila	pk/25 141.00
0232025LD	PressFit Connenctor 0,20 x 0,25 mm ID	Color code: lila /rot	pk/25 141.00
0232525LD	PressFit Connenctor 0,25 x 0,25 mm ID	Color code: rot/rot	pk/25 141.00
0232532LD	PressFit Connenctor 0,25 x 0,32 mm ID	Color code: rot/schwarz	pk/25 141.00
0233232LD	PressFit Connenctor 0,32 x 0,32 mm ID	Color code: schwarz/schwarz	pk/25 141.00
0232553LD	PressFit Connenctor 0,25 x 0,53 mm ID	Color code: rot/blau	pk/25 141.00
0233253LD	PressFit Connenctor 0,32 x 0,53 mm ID	Color code: schwarz/blau	pk/25 141.00
0235353LD	PressFit Connenctor 0,53 x 0,53 mm ID	Color code: blau/blau	pk/25 141.00
Stainless steel column unions see page 17: GRAPHPACK-Connection Technology for Capillary Columns			
100155	Universal Y-Connector, made of Quartz Y-connector for the connection of three columns: e.g. two columns to one injector, or one column to two detectors		79.10
100155-D	Universal Y-Connector, made of Quartz like prior, but deactivated	Information about the deactivation process see page 22.	84.00
100140	Polyimide Glue pk/5 g For stabilisation the connection between connector and FS columns Store the glue in the refrigerator!	 Handling: See our product information on www.cs-chromatographie.de	36.10
100105	Tungsten Carbide Cutter for FS capillary columns		73.60
100106	Replacement Blade for tungsten-carbide-cutter		18.70
029205312	Ceramic Cutter (Column Scribe) , pk/10 Used to cut Fused Silica Tubing	 Dimension 25 x 25 mm 4 Cutting edges	56.80
495S0010	Shortix Fused Silica Tubing Cutter for Fused Silica Capillaries from 350 to 780 µm AD and 100 until 530 µm ID		293.60
495S0011	Maintenance Kit for Shortix Fused Silica Tubing Cutter		161.80
190090	PTFE Shrinkable Tubing for columns with OD 0.4 – 0.8 mm	optimal shrink temperature approx. 400°C via hot air blower	price/m: 16.00
190091	PTFE Shrinkable Tubing for columns with OD 0.2 – 0.4 mm	optimal shrink temperature approx. 400°C via hot air blower	price/m: 23.50

Special Accessories for Capillary GC

		P/N	Description	€ea.
		100125	Stainless Steel Cage Ø 125 mm. 5 Ligaments	29.50
		100160	Stainless Steel Cage Ø 160 mm. 7 Ligaments	38.00
		100190	Stainless Steel Cage Ø 190 mm. 9 Ligaments	48.50
		100101	Reamer Set for boring up ferrules Set of 5 pc. for boreholes of 0.3 (0.6) to 1.6 mm	23.50
		191020	Rinse and Coating System, Type CS for rinsing of capillary columns with chem. bonded phases stainless steel, with 1/8" fittings	165.00
		191021	Replacement test tube	23.00
		191022	Seal replacement set	12.50
		190018	Graphite seals (1/8") replacement set (each 2 pc. with bore hole 0.4 – 0.5 – 0.8 mm)	17.50
		028ADM1000	Digital Mass Gas Flowmeter ADM 1000 <ul style="list-style-type: none"> Measuring 0.5 to 1000 ml/min 	764.00
		028ADM2000	Digital Mass Gas Flowmeter ADM 2000 <ul style="list-style-type: none"> Mass flow measurement 0.5 to 1000 ml/min Data out put via RS-232-Output ■ Technical information at: product information www.cs-chromatographie.de	893.00
		493150	7000 GC Flowmeter <ul style="list-style-type: none"> Mass flow measurement: 0.1 to 500 ml/min Resolution: 0.1 ml/min For 7 gases Size 68x130x30 mm, weight 150 g ■ Technical information at: product information www.cs-chromatographie.de	540.00
		493151	Re-calibration GC 7000 Flowmeter	298.00
		098LD-239	Electronic Leak Detector LD-239 <ul style="list-style-type: none"> For Detection of Argon, Helium, Hydrogen, Neon und CO₂. High Sensibility: 0.0005 ml/min Helium Rechargeable via USB Port ■ Technical information at: product information www.cs-chromatographie.de	1235.00
		09820014	Pressure Detection Instrument GC For non-corrosive gases, incl. PEEK-Tubing 1/16" and needle pressure range 0 to 11 bar. Protection bag and 9 volt battery included ■ Technical information at: product information www.cs-chromatographie.de	275.00
		06590126-1	Replacement needle, 1 pc.	15.00
		06590126	Replacement needle, pk/6.	89.30
		09820019	Fitting and tubing set, see image	68.70
09820015 09820014-CAL	Pressure Detection GC incl. Producer Calibration Recalibration	418.00 165.00		

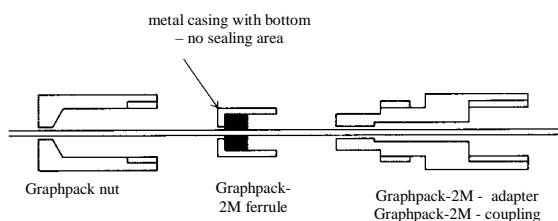
GRAPHPACK® - Fitting and Connection Technology for Capillary Columns

What is GRAPHPACK?

It is a connecting technology for capillary columns made of glass and fused silica where the ferrule is not destroyed at column change. The ferrule remains during his lifetime on the column at a fixed position. This is the most economic and simple method for an absolutely tight fitting and an optimal connection of capillary columns for GC.

The advantages clear and brief:

- **fast, reliable and trouble-free**
- **leak-proof**, also for GC/MS and high vacuum
- **definite column fixation** in injector und detector
- **no retightening** even with changing temperatures
- **economically**, the seal remains on the column



GRAPHPACK-2M-Connection Technology

(replaces GRAPHPACK standard technology since 02-01-1996)

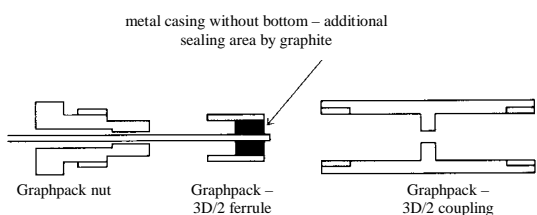
Most important element:

GRAPHPACK-2M-ferrule

- graphite packed metal casing with bottom (L x OD x ID= 4 x 3 x 2 mm)

available are:

- GRAPHPACK-2M-adapters for many GC-types
- GRAPHPACK-2M-couplings



GRAPHPACK-3D/2-Connection Technology

(replaces GRAPHPACK 3D-technology since 04-01-1997)

Most important element:

GRAPHPACK-3D/2-ferrule

- graphite packed metal casing without bottom (L x OD x ID= 4 x 3 x 2 mm)

available are:

- GRAPHPACK-3D/2- adapters for many GC-types
- GRAPHPACK-3D/2- couplings



GRAPHPACK 3D/2 Column Connector	P/N	€ea.
bore hole 0.31 mm to bore hole 0.31 mm	0901343131	120.00
bore hole 0.31 mm to bore hole 0.45 mm	0901344531	120.00
bore hole 0.40 mm to bore hole 0.40 mm	0901344040	120.00
bore hole 0.40 mm to bore hole 0.45 mm	0901344540	120.00
bore hole 0.45 mm to bore hole 0.45 mm	0901344545	120.00

GRAPHPACK 2M Adapter Male and Female

	P/N	€ea.	bore hole 0.31 mm		bore hole 0.45 mm		bore hole 0.7 mm	
			P/N	€ea.	P/N	€ea.	P/N	€ea.
1/16" male to bore hole	090683031	n.m.l.	090683045	106.00	090683007	106.00		
1/8" male to bore hole	090683131	87.10	090683145	87.10	090683107	87.10		
1/4" male to bore hole	090683231	n.m.l.	090683245	76.30	090683207	76.30		
1/16" female to bore hole	-	-	090683345	109.00	090683307	109.00		
1/8" female to bore hole	090683431	90.60	090683445	90.60	090683407	90.60		
1/4" female to bore hole	090683531	n.m.l.	090683545	83.90	090683507	83.90		



GRAPHPACK Ferrules, types standard, 2M, 3D, 3D/2 according to the following table, pk/10

	Bore hole 0.25 mm		Bore hole 0.31 mm		Bore hole 0.40 mm		Bore hole 0.45 mm		Bore hole 0.8 mm	
	P/N	€ea.	P/N	€ea.	P/N	€ea.	P/N	€ea.	P/N	€ea.
Standard	090150525	114.00	090150531	114.00	090150540	114.00	090150545	114.00	090150508	114.00
2M	090180525	114.00	090180531	114.00	090180540	114.00	090180545	114.00	090180508	114.00
3D	090160525	142.00	090170531	142.00	090170540	142.00	090170545	142.00	090170508	142.00
3D/2	090170525	114.00	090150531	114.00	090150540	114.00	090150545	114.00	090150508	114.00



GRAPHPACK Nuts

	P/N	€ea.
version SW 5, thread M4 (new version) pk/5	090126805	70.80
version SW 7, thread M6 (old version) pk/5	090098005	n.m.l.

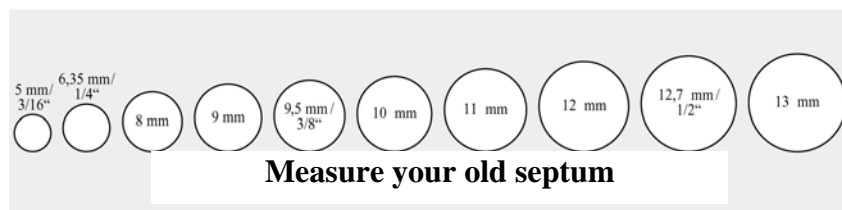
Advice:

Please note that the given bore hole size of adapters and connectors must be compatible to the outer diameter of your capillary.

e.g. bore hole 0.45 mm for FS Capillaries with 0.32 mm ID (and 0.44 mm OD)

Septa for GC

CS-Silicone Septa and CS-HT Septa in pk/50,
all other Septa are delivered in pk/25.
Delivery in glass bottles.



Septa Type	Description	Hard shore A	Max. Temperature*
Silicone Septa, transparent	cost-saving standard version	40	200°C
HT-Septa, gray	cost-saving, temperature stable septum	50	300°C
Silicone/PTFE, double-layer	very inert, due to PTFE coating	40(Silicone)/60(PTFE)	215°C
Silicone Septa, triple-layer	high durability, due to soft middle layer	50	200°C
Septa BTO, red	very low bleed septum, GC/MS suitable	40	400°C
Septa 77, red	low bleed standard septum	55	330°C
Septa AG 3, green	low bleed septum, high temperature stable	50	400°C
Marathon Septa, pink	soft, extremely durable septum, >400 injections	45	400°C

* Please note that the effective temperature exposure of the septum is normally 80 -100°C below the adjusted injector temperature.

Product Range







Ø mm	pk/50 CS-Silicone Septa transparent 3 mm thickness		pk/50 CS-HT-Septa silicone gray 3 mm thickness		pk/25 Silicone/PTFE 2-layer white/yellow 3 mm thickness		pk/25 Silicone, 3-layer red/transparent/red 4 mm thickness	
	P/N	€pk.	P/N	€pk.	P/N	€pk.	P/N	€pk.
6.35 = 1/4"	-	-	-	-	366020	50.25	366030	32.50
8	-	-	-	-	366021	45.65	366031	39.00
9	366001	25.30	366010	33.60	366022	50.25	366032	40.65
9.5 = 3/8"	-	-	-	-	366023	50.25	366033	37.30
10	366002	27.00	366011	35.20	366024	50.25	366034	45.65
11	366003	27.50	366012	35.70	366025	50.25	366035	50.25
12	366004	29.00	366013	38.70	366026	50.25	366036	50.25
12.7 = 1/2"	-	-	-	-	366027	50.25	366037	61.70
13	366005	30.20	366014	40.00	-	-	366038	59.20
15	366006	32.50	366015	52.00	-	-	366039	67.95
17	366009	38.10	366018	58.00	-	-	366040	67.95
18	366008	40.00	366019	61.00	-	-	366041	103.50

Ø mm	pk/25 Septa BTO silicone red 3 mm thickness		pk/25 Septa 77 silicone red 3 mm thickness		pk/25 Septa AG 3 silicone green 3 mm thickness		pk/25 Marathon Septa 3 mm thickness	
	P/N	€pk.	P/N	€pk.	P/N	€pk.	P/N	€pk.
5	366050 ¹⁾	47.20	-	-	366070 ¹⁾	43.45	366080 ¹⁾	56.95
6	-	-	366061	41.50	-	-	-	-
9	366056 ¹⁾	47.20	-	-	366076 ¹⁾	43.45	366086 ¹⁾	56.95
9.5 = 3/8"	366052	47.20	366062	41.50	366072	43.45	-	-
10	366053	47.20	366063	41.50	-	-	-	-
11	366054 ¹⁾	47.20	-	-	366074 ¹⁾	43.45	366084 ¹⁾	56.95
11.5	366057 ¹⁾	47.20	-	-	366077 ¹⁾	43.45	366087 ¹⁾	56.95
12.7 = 1/2"	366055 ¹⁾	47.20	-	-	366075 ¹⁾	43.45	366085 ¹⁾	56.95
17	366058 ¹⁾	48.15	-	-	366078	44.30	366088	58.05
Shimadzu	366059	47.20	-	-	366079	43.45	366089	56.95

¹⁾ Septa with Center Guide are pre-pierced






More diameters are available on request.

Individual Parts and Accessories for Gas Pipes

Pressure Regulators	P/N	for Gas:	Fittings	€ea.
	199200	Synthetic Air	nut 3/4"	122.50
	199201	Compressed Air	5/8"(male thread)	122.50
	199202	Nitrogen	W 24.32 x 1/14"	122.50
	199203	Helium/Argon/CO ₂	W 21.8 x 1/14"	122.50
	199204	Hydrogen	W 21.8 x 1/14" left thread	122.50
Pressure Regulators (hot-pressed brass) <ul style="list-style-type: none"> • constr. due to DIN 8546, with 2 manometers • input 0-200 bar, output 0-10 bar, • output R 1/4" (male), resp. R 3/8" (left, male) for 199204 	199209	Replacement Seals made of PA for Cylinder Side 19 x 11.5 mm		2.00
... for connection of the right tubing (to 199200-199203) up to 10 bar				
 <p>Nut Wrench Size 17</p>	Brass Connector			
	199210	R 1/4"-female to 2 mm tubing		20.00
	199211	R 1/4"-female to 1/8" tubing		20.00
	199212	R 1/4"-female to 6 mm tubing		20.00
	199213	R 1/4"-female to 1/4" tubing		20.00
199214	R 1/4"-female to tube clip 6 mm		6.50	
... for connection of the right tubing (to 199204=Hydrogen) up to 10 bar				
 <p>Nut Wrench Size 19, left-handed thread</p>	Brass Connector			
	199215	R 3/8" female left-handed to 2 mm tubing		20.00
	199216	R 3/8" female left-handed to 1/8" tubing		20.00
	199217	R 3/8" female left-handed to 6 mm tubing		20.00
	199218	R 3/8" female left-handed to 1/4" tubing		20.00
199219	R 3/8" female left-handed to tube clip 6 mm		6.50	
... to shut off the gas pipes up to 10 bar				
	Ball valves with Fittings for:			
	199230	2 mm tubing		40.50
	199231	1/8" tubing		40.50
	199232	6 mm tubing		40.50
199233	1/4" tubing		40.50	
... for splitting to 2 gas extraction points				
	Brass Tee 3 x R 1/4" male with 2 Ball Valves for single shut-off for:			
	199221	2 mm tubing		60.00
	199222	1/8" tubing		60.00
	199223	6 mm tubing		60.00
199224	1/4" tubing		60.00	
... for splitting to 3 gas extraction points				
 <p>As above, but Brass Cross and 3 Ball Valves</p>	Brass Cross 3 x R 1/4"-male with 3 Ball Valves for single shut-off for:			
	199241	2 mm tubing		92.00
	199242	1/8" tubing		92.00
	199243	6 mm tubing		92.00
199244	1/4" tubing		92.00	

Advice: The fittings and connectors are assorted but not assembled ready for use!
 Assembly mit Teflon tape (P/N 590205, page 68 or sealing agent).

Gas Purification for GC

System OXISORB®L																		
<ul style="list-style-type: none"> • application up to 10 bar and max. 1 m³/h • for removal of oxygen, moisture and hydrocarbons in carrier gases (N₂, He etc.). The system consists of an OXISORB-L cartridge holder and the filter cartridge for the respective usage. • due to a characteristic color change (from blue-gray to dark blue) the contamination of the OXISORB-W glass cartridge with oxygen and water as well can be detected which leads to an optimal use of the cartridge. • when using an OXISORB cartridge with glass shell an additional chip guard (P/N 491012) is needed 																		
Oxisorb Cartridge Holder	P/N	Description	€ea.															
	491001	for gas pipe 1/4"	149.50															
	491002	for gas pipe 6 mm	149.50															
	491003	for gas pipe 1/8"	149.50															
		Holder is delivered without cartridge!																
Stand or Wall Holder		for 1/8" gas pipe incl. bracket for wall fixation																
	491016	stand or wall holder OXISORB (fittings for 1/8" tubing) Holder is delivered without cartridge! Holder can be used for all following purification cartridges.	263.00															
Gas Purification Cartridges		(for all types of holders)																
 <p>Volume 50 ml</p>		Advice: The lifetime of gas purification cartridges is dependent on the purity of the incoming gas. Therefore no predictions about lifetime can be given.																
		<table border="1"> <thead> <tr> <th>Description</th> <th>Eliminates max.:</th> <th>Final Purity</th> </tr> </thead> <tbody> <tr> <td>491004 OXISORB-W Cartridge</td> <td>100 ml O₂/500 ml H₂O</td> <td>< 5 ppb O₂/ < 30 ppb H₂O</td> </tr> <tr> <td>491005 Hydrosorb (drying) Cartridge</td> <td>1000 ml H₂O (steam)</td> <td>< 20 ppb H₂O</td> </tr> <tr> <td>491006 Accusorb Cartridge</td> <td>400 mg Hydrocarbons 100 ml O₂ /500 ml H₂O</td> <td>< 10 ppb KW</td> </tr> <tr> <td>491010 OXISORB-W Cartridge with viewable loading (glass shell)</td> <td>Use cartridge only with chip guard.</td> <td>< 5 ppb O₂/ < 30 ppb H₂O</td> </tr> </tbody> </table>	Description	Eliminates max.:	Final Purity	491004 OXISORB-W Cartridge	100 ml O ₂ /500 ml H ₂ O	< 5 ppb O ₂ / < 30 ppb H ₂ O	491005 Hydrosorb (drying) Cartridge	1000 ml H ₂ O (steam)	< 20 ppb H ₂ O	491006 Accusorb Cartridge	400 mg Hydrocarbons 100 ml O ₂ /500 ml H ₂ O	< 10 ppb KW	491010 OXISORB-W Cartridge with viewable loading (glass shell)	Use cartridge only with chip guard.	< 5 ppb O ₂ / < 30 ppb H ₂ O	
	Description	Eliminates max.:	Final Purity															
	491004 OXISORB-W Cartridge	100 ml O ₂ /500 ml H ₂ O	< 5 ppb O ₂ / < 30 ppb H ₂ O															
	491005 Hydrosorb (drying) Cartridge	1000 ml H ₂ O (steam)	< 20 ppb H ₂ O															
	491006 Accusorb Cartridge	400 mg Hydrocarbons 100 ml O ₂ /500 ml H ₂ O	< 10 ppb KW															
491010 OXISORB-W Cartridge with viewable loading (glass shell)	Use cartridge only with chip guard.	< 5 ppb O ₂ / < 30 ppb H ₂ O																
	for it:	for usage of OXISORB-W cartridges with glass shell:																
	491012	Chip Guard for cartridge holder	59.00															
Charcoal Filter, CS-Style		Length 150 mm, OD x ID = 12 mm x 10 mm, Volume 12 ml, max. Pressure 100 bar																
		Effective up to 2 L/min, n-hexane adsorption ≥30% = about 1500 mg																
		For elimination of hydrocarbons from carrier gases and compressed air. Filter tubes with fittings, refillable.																
	191010	for gas pipe 1/4"	78.00															
	191011	for gas pipe 6 mm	78.00															
	191012	for gas pipe 1/8"	78.00															
	191013	15 g refill package charcoal (for 2 fillings; approx. 25 ml)	14.50															
Molecular Sieve Filter, CS-Style		Length 150 mm, OD x ID = 12 mm x 10 mm, Volume 12 ml, max. Pressure 100 bar																
		Effective up to 2 L/min, water adsorption ≥20% = about 1800 mg																
		For elimination of moisture from gases for GC. Filter tubes with fittings, refillable.																
	191001	for gas pipe 1/4"	78.00															
	191002	for gas pipe 6 mm	78.00															
	191003	for gas pipe 1/8"	78.00															
	191004	20 g refill package molecular sieve (for 2 fillings, approx. 25 ml)	14.50															




Gas cleaning for GC

SGT Super Clean™ Gas filter

Gas clean-up is an indispensable element of gas chromatography. Already traces of oxygen can destroy the stationary phase in the capillary columns. In addition, other impurities such as moisture and hydrocarbons impair the affect the GC system and the results of analyses.

In each gas line the initial quality of the gases deteriorate by diffusion. What does an initial purity of 5.0 or better help, if diffusion due to wrong piping material (e.g. plastic lines), long line systems, many connecting and T-fittings or micro leakages lead to impurities in the gas?

In this case just a purification system immediately before the system put things right.

			Characteristic: Max. Pressure: 11 bar (160 psi) Max. Flow: 7 l/min Dimension: 24 x 4,4 cm Weight: 260 g Durability: > 2 years
<i>Base plate with 3 filters</i>	<i>Hydrocarbon AT</i>	<i>Triple Filter</i>	


The SGT Super Clean Gas cleaning system offers the following advantages:

- highest cleaning capacity on < 0.1 ppm impurity
- **Triple Filter** = only one filter for oxygen + moisture + hydrocarbons
- separated indication for oxygen + moisture + hydrocarbons (AT-Filter)**
- high economic by use of lower-priced gases
- retraction of the used up filters
- applicable for all non-corrosive gases less than 0.5% oxygen



P/N	Description	For Gaseas	Capacity			Final purity (%)	€ea.
			H ₂ O	O ₂	HC*		
495F0301	Triple Filter	He, H ₂ , N ₂ , Ar	1.8 g	75 ml	4 g	>99.9999	165.00
495F0302	Triple Filter He	He	1.8 g	75 ml	4 g	>99.9999	207.00
495F0304	Triple Filter H ₂	H ₂	1.8 g	75 ml	4 g	>99.9999	207.00
495F0101	Moisture	He, H ₂ , N ₂ , Ar, Air	7.2 g			>99.9999	145.00
495F0102	Oxygen	He, H ₂ , N ₂ , Ar		150 ml		>99.9999	145.00
495F0103	Hydrocarbon	He, H ₂ , N ₂ , Ar, Air			12 g	>99.9999	145.00
495F0201	Fuel Gas Filter**	He, H ₂ , N ₂ , Ar, Air	3.5 g		6 g	>99.9999	163.00

* hydrocarbons related to Butane

** recommended for FID fuel gases

495B0010-B8	Base plate for 1 pc. filter, 1/8" brass connection		232.00
495B0020-B8	Base plate for 2 pcs. filter, 1/8" brass connection		430.00
495B0030-B8	Base plate for 3 pcs. filter, 1/8" brass connection		619.50

Purification of internal compressed for Air application in GC

	Requirement: Moisture and oil filter at the compressor exit!	 Filter unit consists of: Each 80 ml stainless steel tubing filled with charcoal and molecular sieve 4Å, Inlet and outlet connection alternatively for 1/8", 6 mm or 1/4"-OD-tubing
	191015 Filter unit for internal compressed air, Connection for tubing 1/8" OD 715.00 191016 Filter unit for internal compressed air, Connection for tubing 6 mm OD 715.00 191017 Filter unit for internal compressed air, Connection for tubing 1/4" OD 715.00 191018 Refill package each 80 ml charcoal and molecular sieve 83.50	

INNO-Sil[®]

THE deactivation procedure for GC-Liner, Glass Wool and other Glass Surfaces.

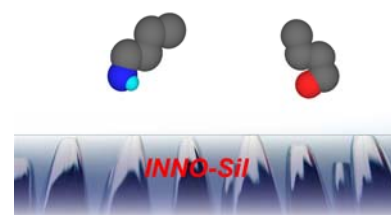
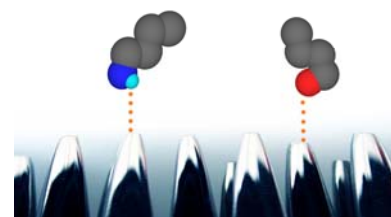


Adsorption

Liquids and gases have the tendency to accumulate on solid surfaces. This characteristic is indeed useful for some chromatographic separations, but not desired in other cases.

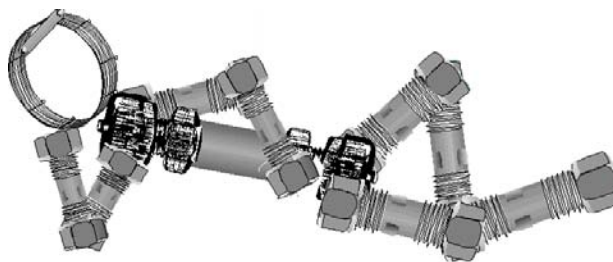
Adsorption has normally a bad influence on the quality of the chromatogram. Peak shape and peak width may be affected and separation efficiency will be reduced. Much more unpleasant it is, if parts of the sample adhere on the surface. Then reproducibility will decrease, quantification is inaccurate and in the worst case, analytes will be "swallowed" complete and are not be seen in the chromatogram.

Adsorption may appear, if the sample gets contact to solid surfaces. This is especially true for **glass surfaces**. Polar groups of the analyte may interact with the free silanol groups on the glass surface, if this surface is not **deactivated** accurately.



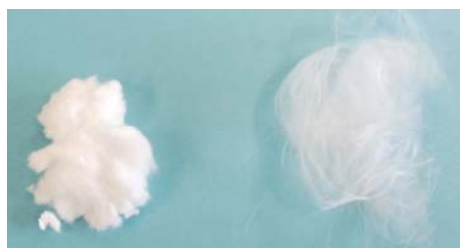
Deactivation procedure

The glass surface of **new** GC liners / inserts as well as glass wool for GC applications are normally deactivated with a standard procedure. This standard procedure is satisfactory for most applications. But in some analytical methods, e. g. the determination of **pesticides**, there are **higher requirements**.



INNO-Sil[®]

- is our new deactivation procedure. It provides **highest inertness** of the glass surface and avoids adsorption even with sensitive analytes like **pesticides, amines, steroids and phenolic compounds**.



Standard- and **INNO-Sil** deactivation can be applied to all types of glass surfaces. CS offers both procedures for GC liner/inserts, glass wool and glass vials (see also page 23-25, 68 and 90).

If you have any questions about our deactivation methods or you need a deactivation of other glass apparatus – please contact us. We would be glad to help you!

Liner-Regeneration

- ▶ Avoid adsorption!
- ▶ Enhance quality!
- ▶ Conserve resources!
- ▶ Save costs!



You believe

the time of your liner is up?

We do not think so!

Turn OLD

into NEW !

What do we mean by „Liner-Regeneration“?

At first we clean the liners including manual removal of remaining depositions on the surface. Subsequently the liners are washed and dried and deactivated.

Here are three silanization to choose from: the well established **Sil**-procedure, the modified phenyl-methyl (PM)-**Sil**-procedure for medium-polar and polar analytes or the quality **INNO-Sil** method.

To avoid adsorption sites glass wool is inserted into the liner before the deactivation process. After a gentle secondary cleaning and conditioning, the liners are ready for direct use.

Please note: This procedure is also applicable to Siltek®-and Sky®-Liners.

P/N	Description	€/ea at a purchase quantity of:		
		1-9 pc. -01	10-19 pc. -10	from 20 pc. -20
*Appendix → 1005031	Liner Regeneration Sil Plus Cleaning – Sil-Deactivation – Conditioning	12.50	11.40	10.15
1005036	Liner Regeneration PM-Sil Plus Cleaning – PM-Sil®-Deactivation – Conditioning	13.00	11.95	10.65
1005032	Liner Regeneration INNO-Sil® Plus Cleaning – INNO-Sil®-Deactivation – Conditioning	13.50	12.50	11.10
1005034	Liner Regeneration GW Sil® Plus Cleaning – Inserting Sil-Glass Wool – Sil-Deactivation – Conditioning	13.95	12.80	11.60
1005037	Liner-RegenerationGW PM-Sil Plus Cleaning –Inserting INNO-Sil®-Glass wool – PM-Sil®-Deactivation – Conditioning	14.75	13.65	12.40
1005035	Liner Regeneration GW INNO-Sil® Plus Cleaning –Inserting INNO-Sil®-Glass wool – INNO-Sil®-Deactivation – Conditioning	15.55	14.50	13.10

The prices of the liner regeneration are subject any applicable additional costs **in case of extreme contamination**, as this can only be determined during processing. Also during **inserting silanized glass wool into Liner with special geometry** (e. g. small double gooseneck liner) may lead to additional costs.


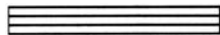
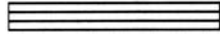






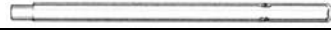


On request, we fill **Liner with Packing materials or Carbofrits of your choice**.

Please request an individual offer.

For liners which may break during shipment we assume no liability.

* = Definition Appendix see page 93

Deactivated Liners for Capillary GC, O-Rings and Seals

P/N	Description	Application	OD x Length Glass type	Replace Orig. Part No.	€ea.	€/pk/5
*Appendix	→				-01	-05
for Agilent:						
029 216973		for Agilent Liner	Viton O-Rings 9.5 x 6.0 x 1.7 mm	5180-4182	8.15/Pg. a 12 St.	
053130	Universalliner 1.9 mm ID	For packed columns	3mm OD x 93mm borosilicate glass	5080-8732(25)	-	-
02420712 02420713	splitless liner 2 mm ID 	trace samples <2µl	6.5mm OD x 78.5mm borosilicate glass	5181-8818 5183-4703(5) 5183-4704(25)	32.20 -	32.20 -
053111	splitless liner 2 mm ID 	trace samples <2µl	6.5mm OD x 78.5mm quartz glass	18740-80220 5183-4707(5) 5183-4708(25)	31.35	31.35
053113	Split/splitless liner 4 mm ID with wool 	universal, with Agilent 7673 autosampler	6.3mm OD x 78.5mm borosilicate glass	19251-60540	21.50	21.50
053119	gooseneck split/splitless 	active trace samples >2µl	6.5mm OD x 78.5mm borosilicate glass	5181-3316 5183-4695(5) 5183-4696(25)	29.35	29.35
for Thermo/Fisons/Carlo-Erba:						
029 216948		for 8 mm AD-Liner	graphite seal rings for Thermo Trace GC	29033406	17.35	-
060 092150	split liner 5 mm ID 		8 mm OD x 105 mm borosilicate glass	45300320	33.50	132.00
060 092141	Splitless Liner 3 mm ID 		8 mm OD x 105 mm borosilicate glass	45320032	53.00	211.00
060 092144	split liner 5 mm ID 		8 mm OD x 105 mm borosilicate glass	45320033	50.50	200.00
for Perkin-Elmer:						
053212	Dimple Splitter 	for most common samples	5 mm OD x 100 mm borosilicate glass	0330-5181	30.25	-
für Varian: <i>For Varian CP 1177-Injector use the Agilent-Liner 6.5 mm x 78.5 mm (see above)</i>						
053313	Split Liner with wool 	universal, for dirty samples	6.3mm OD x 72mm borosilicate glass	01-900109-01	34.40	153.50
für Carlo-Erba: <i>For Varian CP 1177-Injector use the Agilent-Liner 6.5 mm x 78.5 mm (see above)</i>						
053610	Splitless Liner 2mm ID 	for trace samples	5,5 mm OD x 79,5mm borosilicate glass	453 00300	25.40	-

*Appendix → see page 93

**On this page we only can present an extract of our liner program
If you do not find the type you need please request an offer.**

GC-Liner from CS

All CS-Liner are *INNO-Sil*[®] deactivated. Inserting glass wool is possible for all liners.
In this case the liner is deactivated after inserting INNO-Sil[®] Plus Glass Wool and conditioned.



P/N *Appendix	Picture →	OD x Length in mm Glass type/with/without glass wool	€ea. -01	€pk/5 -05	€pk/25 -25
ATAS OPTIC (GL Sciences)					
109501-OR		Precision Viton-O-Ring 8,5 x 4,5 x 2,0 mm	2.00	8.80	41.20
109501		5.0 x 3.4 x 81 mm borosilicate glass with frit porosity 1	21.20	95.30	431.90
109501-GB		5 x 3,4 x 81 mm as 109501 but with <i>INNO-Sil</i> [®] -Glassbeads and <i>INNO-Sil</i> [®] -Glass Wool	36.90	166.90	756.60
Agilent					
109112		6.3 x 4.0 x 78.5 mm borosilicate glass	16.30	75.70	340.00
109112-GW		6.3 x 4.0 x 78.5 mm borosilicate glass with <i>INNO-Sil</i> [®] -Glass Wool	20.40	95.80	436.80
109122		6.3 x 4.45 x 78.5 mm quartz glass	36.30	162.80	-
109122-GW		6.3 x 4.45 x 78.5 mm quartz glass with <i>INNO-Sil</i> [®] -Glass Wool	40.40	183.40	-
Shimadzu 14A					
053449		Graphite-Ferrules with metal ring for Liner 5 mm OD comparable to Shimadzu: 221-46403-92	15.30	68.30	-
109414		5 x 3/1 x 99 mm borosilicate glass comparable to Shimadzu 221-32544	23.50	109.20	489.30
053416		5.0 mm AD x 99 mm borosilicate glass – Double Gooseneck comparable to Shimadzu 221-32544	38.70	173.10	-
Shimadzu 17A, 2010, 2014					
109422		5 x 3/1 x 95 mm borosilicate glass comparable to Shimadzu 221-48335-01	22.50	102.80	454.30
109440		5 x 3.5 x 95 mm borosilicate glass comparable to Shimadzu 221-41444	18.40	85.10	384.20
109444		5 x 2.6 x 95 mm borosilicate glass comparable to Shimadzu 221-41544	18.40	85.10	-

* = Appendix → see page 78

On this page we can only present an extract of our liner program.
If you do not find the type you need please request an offer.



Do you already know our exclusive service for liner regeneration?

Cleaning and deactivation, as well as inserting glass wool if desired,
to a fraction of the price of a new liner.

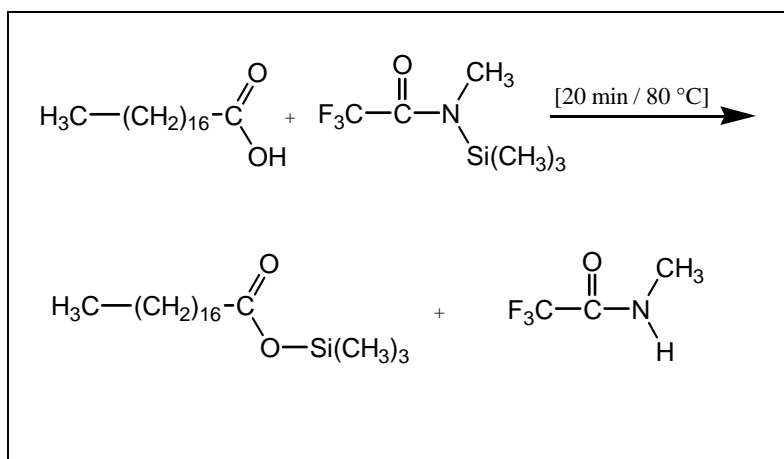
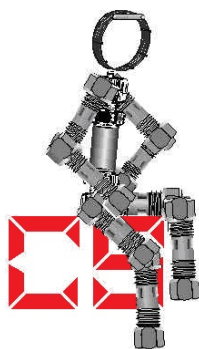
Request our offer!

Interested? First-time customers will receive a coupon for free
regeneration of two liners!

More information and price overview see page 23!



Helpful Advices for Derivatization



Aim of a derivatization:

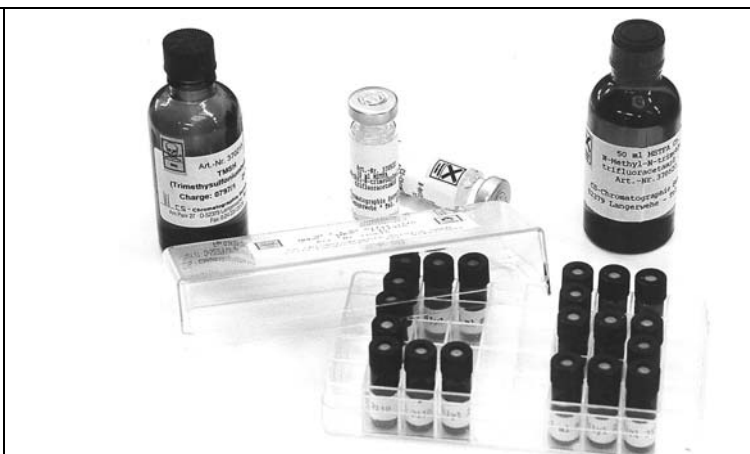
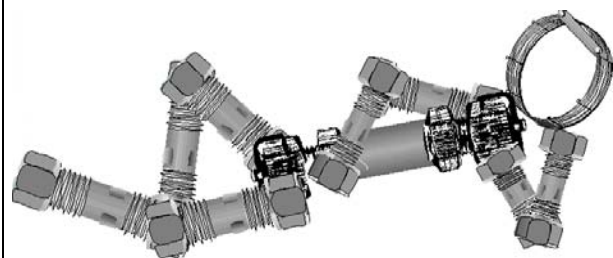
- improvement of detection limit (especially for ECD and GC/MS) by introduction of detector specific groups
- improvement of the thermal stability
- transfer of decomposable compounds to stable and volatile compounds
- transfer of heavily volatile compounds to lightly volatile derivatives
- shielding of polar groups which are inclined to adsorption

The following table assists you by the choice of your derivatization agent. This list is not exhaustive. Please contact us if there are any special problems regarding derivatization. We would be pleased to assist you. A detailed survey of "Chemical Derivatization in Gas Chromatography" is given in the homonymous book from J. Drozd, Elsevier, Amsterdam, ISBN 0-444-41917-9.

Our data sheets with details of handling the derivatization agents can be send on request

Compound Class	Method	Derivatization Agent	Comments
alcohols	acylation 20-30 min at 60-100 °C silylation 20-30 min at 60-100 °C	MBTFA MSTFA, BSTFA	1:4 with pyridine, DMF, THF, AN
amines	acylation 1-2 h at 60-80 °C acylation 30 min at RT	TFAA, HFBA MBTFA	1:4 with pyridine, DMF, THF, AN
amine hydrochlorides	silylation 20-30 min at 60-100 °C	MSTFA	
amino acids	silylation 20-30 min at 60-100 °C acylation 1-2 h at 60-80 °C	BSA TFAA, HFBA	
barbiturates	methylation	TMAH	methylation „On-Column“
carboxylic acids	silylation 20-30 min at 60-100 °C methylation 20-30 min at 80 °C methylation 20-30 min at 80 °C	MSTFA DMF-DMA TMSH	solvent pyridine, DMF, THF
glycols	silylation 20-30 min at 60-100 °C	TSIM, Silyl-1139	solvent pyridine, DMF
nucleotides	silylation 20-30 min at 60-100 °C	Silyl-21, Silyl 2110	solvent pyridine
phenols	acylation 1-2 h at 60-80 °C acylation 20-30 min at 60-100 °C silylation 20-30 min at 60-100 °C methylation 20-30 min at 80 °C	HFBA MBTFA MSA, BSA, BSTFA TMSH	solvent benzene 1:4 with pyridine, DMF, THF, AN (maybe 1% TMCS as catalyst, best method for pentachlorophenol)
steroids	silylation 20-30 min at 60-100 °C silylation 3-6 h at 80 °C silylation 6-24 h at 80 °C	Silyl-2110 BSA-TMCS 5:1 TSIM-BSA-TMCS 3:3:2	for sterically little and not hindered steroids for sterically hindered steroids
thiols	acylation 1-2 h at 60-80 °C silylation 20-30 min at 60-100 °C	MBTFA MSTFA	1:4 with pyridine, DMF, THF, AN
sugars	silylation 20-30 min at 60-100 °C silylation 20-30 min at 60-100 °C	Silyl-21, Silyl-2110 TSIM	solvent pyridine

Derivatization Agents



The complete part number consists of the six-digit P/N from the left column and the appendix according to the packing size in the price columns: i.e. 370105-201 for 20 x 1 ml HFBA.

P/N.	Code	Acylation Agents	€pk 10 x 1 ml -101	€pk 20 x 1 ml -201	€pk 10 ml -110	€pk 5 x 10 ml -510
Appendix	→					
370105	HFBA	heptafluorobutyric anhydride	-	173.10	83.50	375.00
370110	MBTFA	<i>N</i> -methyl-bis-trifluoroacetamide	-	182.40	82.60	367.80
370115	PFBC	pentafluorobenzoylchloride	133.90	-	-	-
370120	TFAA	trifluoroacetic anhydride	37.90	-	22.70	76.30
		Silylation Agents				
370545	BCM-TMDS	1.3-bis(chloromethyl)-1.1.3.3-tetramethyldisilazane	178.20	-	-	-
370501	BSA	<i>N</i> . <i>O</i> -bis(trimethylsilyl)acetamide	-	-	22.70	76.30
370505	BSTFA	<i>N</i> . <i>O</i> -bis(trimethylsilyl)trifluoroacetamide	-	84.10	35.80	136.00
370510	DMCS	dimethyldichlorosilane	-	-	-	35.80
370515	HMDS	hexamethyldisilazane	-	-	-	35.80
370530	MSA	<i>N</i> -methyl- <i>N</i> -trimethylsilylacetamide	-	-	33.70	136.00
370520	MSTFA	<i>N</i> -methyl- <i>N</i> -trimethylsilyltrifluoroacetamide	-	129.80	58.90	224.60
370550	MBDS-TFA	<i>N</i> -methyl- <i>N</i> - <i>tert</i> -butyldimethylsilyltrifluoroacetamide	198.80	397.60	-	-
370525	TMCS	trimethylchlorosilane	-	33.70	-	38.90
370555	TMSA	trimethylsilylazide	-	-	44.20	193.70
370560	TMSDEA	trimethylsilyldiethylamine	-	-	33.70	136.00
370540	TSIM	trimethylsilylimidazole	-	81.40	33.70	136.00
370600	Silyl-271	BSA - HMDS - TSIM (2:7:1)	-	81.40	33.70	136.00
370605	Silyl-1139	TSIM – pyridine (11:39)	-	81.40	-	-
370610	Silyl-21	HMDS - TMCS (2:1)	-	81.40	-	-
370615	Silyl-2110	HMDS - TMCS - pyridine (2:1:10)	-	81.40	-	-
370620	Silyl-991	BSTFA – TMCS (99:1)	-	81.40	-	-
		Methylation Agents				
370205	DMF-DMA	<i>N</i> . <i>N</i> -dimethylformamide-dimethylacetal	-	82.60	36.80	143.20
370210	TMAH	trimethylaniline hydroxide. 0.1M in methanol	85.10	161.80	-	-
370215	TMSH	trimethylsulphonium hydroxide. 0.2M in methanol	85.10	161.80	78.30	-

* Appendix → see page 93

Test Mixtures for GC Columns

(no calibration mixtures)



P/N	Description and Composition	€ml
192006	Alcohol Test Mixture conc. each 100 mg/l methanol: 1-hexanol, 1-heptanol, 1-octanol, 1-nonanol, 1-decanol	23.00
192004	Amine Test Mixture conc. () mg/l methanol: dibutylamine (100), nonylamine (300), decylamine (300), undecylamine (300), dicyclohexylamine (300), 2,6-dimethylaniline (200)	23.00
192016	BTX Test Mixture conc. each 1000 mg/l n-pentane: benzene, toluol, ethylbenzene, p-xylol, m-xylol, o-xylol	23.00
192014	Carboxylic Acid Test Mixture (new composition since 2003-09-18) conc. each 100 mg/l water: acetic, propionic, isobutyric, butyric, isovaleric, valeric, caproic acid	23.00
192002	CS Test Mixture (modified Grob Test Mixture) conc. () in mg/l n-hexane: n-decane (3100), n-octanol (3500), n-undecane (3100), 2,6-dimethylphenol (3200), 2,6-dimethylaniline (3300), decanoic acid methyl ester (4200), undecanoic acid methyl ester (4200), dicyclohexylamine (3200), dodecanoic acid methyl ester (4200)	23.00
192022	ECD-Test Mixture in Ethanole/n-pentane: trichloroethane, trichloroethene, tetrachloroethene, bromoform, trichlorobenzene, dichloroaniline	23.00
192005	Fatty Acid Methyl Ester (FAME) Test mixture conc. ea. 100 mg/l n-heptane: methyl esters of: butyric acid, hexanoic acid, octanoic acid, decanoic acid, lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, linoleic acid, linolenic acid, arachidic acid, behenic acid	23.00
192010	Fatty Acid TMS Ester / n-Alkanes Test Mixture according M. Donike conc. each 1000 mg/l n-hexane with 20% MSTFA: TMS capric acid, hexadecane, TMS myristic acid, eicosane, TMS stearic acid, tetracosane, TMS behenic acid, octacosane	23.00
192001	Grob Test Mixture (original composition) conc. () in mg/l n-hexane: 2,3-butanediol (532), n-decane (284), n-octanol (354), n-nonanal (400), n-undecane (285), 2,6-dimethylphenol (330), 2,6-dimethylaniline (330), 2-ethylhexanoic acid (377), decanoic acid methyl ester (430), undecanoic acid methyl ester (419), dicyclohexylamine (312), dodecanoic acid methyl ester (412)	29.00
192009	PAH Test Mixture according EPA conc. je 100 mg/l toluene: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benz(a)anthracene, chrysen, benz(a)pyrene, dibenz(a,h)anthracene,	37.00
192012	PAH Test Mixture according TVO conc. () in mg/l cyclohexane: fluoranthene (10), benz(b)fluoranthene (2), benz(k)fluoranthene (2), benz(a)pyrene (2), indeno-(1,2,3-cd)pyrene (2), benz(ghi)perylene (2)	29.00
192011	PCB Test Mixture conc. each 10 mg/l Cyclohexan: Ballschmitter-No. 28, 52, 101, 153, 138, 180	29.00
192008	Phenol Test Mixture conc. each 100 mg/l methanol: phenol, 2-chlorophenol, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 4-chloro-3-methylphenol, 2,4,6-trichlorophenol, 2,4-dinitrophenol, 4-nitrophenol, 2-methyl-4,6-dinitrophenol, pentachlorophenol	23.00
192003	Polarity Test Mixture conc. () in mg/l n-pentane: n-butanol (2000), benzene (1000), butyric acid methyl ester (2000), toluene (1500), cyclopentanone (2000), 1-octene (1500), dibutylether (2000)	23.00
192018	Test Mixture for Petroleum Hydrocarbons / H 53 each 15 mg/ml Shell-Diesel and Shell-Lubrication Oil as well as each 1 mg/ml n-decane and n-tetracontane in n-pentane	31.00

Packed GC Columns


INNOSTeel : Stainless Steel Tubing, internal Silica-coating and deactivation for highest claims

Stainless steel fittings and connectors as an accessory (see below)

For details about this product group, and the lists of charges for Packing materials see page 30/31



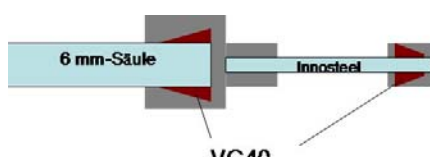
Length		1 mm ID without Fittings	Säulen with 2 mm ID without Fittings		4 mm ID without Fittings
		INNOSTeel tubing 1/16" OD	INNOSTeel tubing 1/8" OD	INNOSTeel tubing 1/8" OD	INNOSTeel tubing 6 mm OD
ft.	m	€ea.	€ ea.	€ ea.	€ ea.
3	1,0	173.00	137.00	159.00	250.00
6	1,8	258.00	206.00	228.00	406.00
7	2,0	289.00	229.00	251.00	458.00
10	3,0	-	298.00	320.00	614.00



Mikrogepackte GC-Säule 1/16" AD

Gepackte GC-Säule 1/8" AD

Adapter and accessories for packed GC Columns :

Description*	Column 1/16" OD		Column 1/8" AD		Column 6 mm/1/4" OD	
	P/N	€ea.	P/N	€ea.	P/N	€ea.
* SS-Fitting (Screw with cap) *You need 2 pcs., per column.	491123	19.20	491124	11.40	49112506	9.75
* SS-Union and Capillary connections* Consist of SS Union 1/16", reducing ferrule VG40, 1/16" x 0,8 mm hole and INNOSTeel-Capillary, 150 mm x 0,8 mm OD x 0,53 mm ID	491053-Set	73.65	-	-	-	-
* SS-Reducer and Capillary connections* Consist of SS-Reducer 1/8" to 1/16", Reducing ferrule VG40, 1/16" x 0,8 mm hole and INNOSTeel-Capillary, 150 mm x 0,8 mm OD x 0,53 mm ID	-	-	491139-Set	66.05	-	-
* Adapter to fit a glass column 6 mm OD to port 1/8" 					491141-6mmS-1/8	46.15
* Adapter to fit a packed column 4 mm OD to port 1/8" <i>Setting up analog P/N 491141-6mmS-1/8</i> Consist of SS-Reducer 1/4" x 1/8", Reducing ferrule VG40, 1/4" x 4 mm hole, INNOSTeel-Capillary, 50 mm x 1/8" OD x 1/8" ID, SS-Nut 1/8" and Ferrule VG40 1/8" x 1/8"					491141-4mmS-1/8	49.15
Adapter with glass tubing to fit a column 1/8" OD to port 6mm/1/4"-OD columns <i>(usually only for Injector connection)</i> Consist of Glass tubing 100 mm x 6 mm OD x 4 mm ID, SS-Reducer 1/4" x 1/8", 2 pcs. Reducing ferrule Graphit, 1/4" x 6 mm hole, SS-Nut 1/4"					491141-Set	39.75

INNOSTeel: Stainless Steel Tubing, internal Silica-coating for maximum purity

P/N	Description	Material- No.	Max. pessure	€ft.
198053	Stainless steel tubing INNOSTeel 1/16" OD x 1,0 mm	SS 304	400 bar	21.00 €ft
198055	Stainless steel tubing INNOSTeel 1/8" OD x 2,1 mm	SS 304	400 bar	14.65 €ft
198059	Stainless steel tubing INNOSTeel 6mm OD x 4 mm	SS316L	400 bar	33.60 €ft

Packed GC Columns

Packed GC Columns 1 and 2 mm ID

Prices including filling material, P/N-Group 362999.

Conditioning is possible - see table.



INNOSTeel : Stainless Steel Tubing, internal Silica-coating and deactivation for highest claims

Length		Columns with 1 mm ID	Columns with 2 mm ID (volume approx. 1 ml/ft)				
ft.	m	SS-tubing 1/16" OD without fittings €ea. €ea.	only filling ²⁾ €ea.	SS-tubing 1/8" OD without fittings €ea.	SS-tubing 1/8" OD SS fittings €ea.	INNOSTeel 1/8" OD SS fittings €ea.	SS-tubing 1/8" OD Shimadzu ¹⁾ €ea.
1		83.00	77.00	80.00	102.00	113.00	-
2		94.00	86.00	91.00	113.00	136.00	153.00
3	1.0	105.00	95.00	102.00	124.00	159.00	164.00
5	1.5	127.00	113.00	124.00	146.00	205.00	186.00
6	1.8	138.00	122.00	135.00	157.00	228.00	197.00
7	2.0	149.00	131.00	146.00	168.00	251.00	208.00
8	2.5	160.00	140.00	157.00	179.00	274.00	219.00
9			149.00	168.00	190.00	297.00	-
10	3.0		158.00	179.00	201.00	320.00	241.00
12	3.5		176.00	201.00	223.00	366.00	263.00
13	4.0		185.00	212.00	234.00	390.00	274.00
15	4.5		203.00	234.00	256.00		296.00
17	5.0		221.00	256.00	278.00		318.00
20	6.0		248.00	289.00	311.00		351.00
diff./ft.		11.00	9.00	11.00	11.00	23.00	11.00
P/N 362500 Column Conditioning		35.00	35.00	35.00	35.00	35.00	35.00
P/N 362512 Alkane test		70.00	70.00	70.00	70.00	70.00	70.00

1) 1/8"-OD-SS-Tubing x 2 mm ID with original Shimadzu-type fittings (see the picture)



2) customer provides column with 2 mm ID (glass or SS)
3) glass column 2 mm ID, OD according to account, without fittings
PLEASE NOTE: Declaration of manufacturer and instr. type is required

Prices according to the above standing table are valid for:

Chromosorb types A, 750 (as well coated)
Molecular Sieves 5Å, 13X, Charcoal
Silicagel, Aluminium Oxide

Extra charges will be added for the following materials:

Chromosorb G- und P-Series	2.00 €ft.
Chromosorb W-Series, 100-Series	4.00 €ft.
Porapak-Types, HayeSep-Types	6.00 €ft.
Chromosorb T, Tenax TA	7.00 €ft.
Spherosil-, Durapak-, Porasil-Types	7.00 €ft.
Carbosieve S-II, III	on request



INNOSTeel Tubing (left)
1/8" OD x 2,1 mm ID

Micro packed Column (right)
1/16" OD x 1.0 mm ID

Currently the production of some Chromosorb types has stopped.

This might lead to supply difficulties for several types.

We keep all common packing materials and stationary phases for the gas chromatography with packed columns on stock. Request our offer. You find a selection in the following table.

Support Material (uncoated)		60/80 mesh		80/100 mesh		100/120 mesh	
		P/N	€ea.	P/N	€ea.	P/N	€ea.
Chromosorb W-NAW	pk/50 g	361004	492.00	361005	492.00	361006	492.00
Chromosorb W-AW		361007	608.00	361008	608.00	361009	608.00
Chromosorb G-AW-DMCS		361019	408.00	361020	408.00	361021	408.00
Chromosorb P-AW		361028	208.00	361029	208.00	361030	208.00
Chromosorb P-AW-DMCS		361031	299.00	361032	299.00	361033	299.00
Chromosorb 103	pk/50 g	361046	650.00	-	-	-	-
Molecular sieve 5 A	pk/50 g	361067	50.00	361068	50.00	361069	50.00
Porapak Q	pk/75 ml	020506	466.80	020507	466.80	020508	466.80
HayeSep Q		029025	217.25	029026	217.25	029027	217.25

Packed GC Columns



Packed GC Columns with 3 to 5.3 mm ID

Prices including filling material, P/N-Group 362999.

Conditioning and column test is possible - see table.

Length		Columns 3 mm ID			Columns 4 mm ID		5.3 mm ID	
ft.	m	packing only ¹⁾	SS-tubing without fittings ⁶⁾	SS-tubing Shimadzu ²⁾	packing only ¹⁾	SS-tubing without fittings ⁴⁾	packing only ¹⁾	SS-tubing without fittings ⁴⁾
		€ea.	€ea.	€ea.	€ea.	€ea.	€ea.	€ea.
1		107.00	115.00	-	115.00	125.00	135.00	155.00
2		119.00	130.00	171.00	133.00	145.00	163.00	185.00
3	1.0	131.00	145.00	186.00	151.00	165.00	191.00	215.00
5	1.5	155.00	175.00	216.00	187.00	205.00	247.00	275.00
6	1.8	167.00	190.00	-	205.00	225.00	275.00	305.00
7	2.0	179.00	205.00	246.00	223.00	245.00	303.00	335.00
8	2.5	191.00	220.00	261.00	241.00	265.00	331.00	365.00
9		203.00	235.00	-	259.00	285.00	359.00	395.00
10	3.0	215.00	250.00	291.00	277.00	305.00	387.00	425.00
12	3.5	239.00	280.00	321.00	313.00	345.00	443.00	485.00
13	4.0	251.00	295.00	336.00	331.00	365.00	471.00	515.00
15	4.5	275.00	325.00	366.00	367.00	405.00	-	-
17	5.0	299.00	355.00	396.00	403.00	445.00	-	-
20	6.0	335.00	400.00	441.00	457.00	505.00	-	-
Differenz	€ft.	12.00	15.00	15.00	18.00	20.00	28.00	30.00
P/N Column Conditioning		362501	362501	362501	362502	362502	362503	362503
		40.00	40.00	40.00	50.00	50.00	65.00	65.00
P/N GC Test Conditioning		362514	362514	362514	362516	362516	362518	362518
		70.00	70.00	70.00	80.00	80.00	90.00	90.00

- 1) customer provides column (glass or SS)
 - 2) SS column. 4 mm OD x 3 mm ID with original Shimadzu-fittings
 - 3) SS column 1/4" OD x 5.3 mm ID, without fittings
 - 4) SS column 6 mm OD x 4 mm ID, without fittings
 - 5) glass column ID according to the table. OD according customer account. without fittings
- PLEASE NOTE: Declaration of manufacturer and instr. type is required

Prices according to the above standing table are valid for:

Chromosorb types A, 750 (as well coated)
Molecular Sieves 5Å, 13X, Charcoal
Silicagel, Aluminium Oxide

Extra charges will be added for the following materials:

Packing with:	3 mm ID	4 mm ID	5.3 mm ID
Chromosorb G- and P-Series	4.00 €ft.	8.00 €ft.	13.50 €ft.
Chromosorb W-Series, 100-Series	8.00 €ft.	16.00 €ft.	27.00 €ft.
Porapak types, HayeSep types	12.00 €ft.	22.50 €ft.	39.50 €ft.
Chromosorb T, Tenax TA	14.00 €ft.	25.00 €ft.	44.00 €ft.
Spherosil-., Durapak-, Porasil-types	14.00 €ft.	-	-
Carbosieve S-II, III	for all ID: on request		



Request our extensive applications CD-ROM for GC
with separation examples on packed and Fused Silica capillary columns!

Coated Support Materials (custom-made coatings – and custom-made support materials)

For very expensive stationary phases like Silar 10C or OV-275 an extra charge is necessary. Please solicit your personal quotation for these materials.

P/N	Support	Particle Size	€/pk/25 g
361999	Chromosorb P-NAW	60/80, 80/100, 100/120 mesh	155.00
361999	Chromosorb G-NAW, P-AW	60/80, 80/100, 100/120 mesh	190.00
361999	Chromosorb G-AW, P-AW-DMCS	60/80, 80/100, 100/120 mesh	235.00
361999	Chromosorb G-AW-DMCS, W-NAW	60/80, 80/100, 100/120 mesh	285.00
361999	Chromosorb W-AW	60/80, 80/100, 100/120 mesh	335.00
361999	Chromosorb W-AW-DMCS, Chromosorb W-HP	60/80, 80/100, 100/120 mesh	370.00

PU Foam for Gas Sampling



PU- Foam SH 100 with lower density

Technical Data:

Raw Density: 20 kg/m³

Tensile Strength: DIN 53571: 130 kPa/m²

Elongation at Break: DIN 53571: 160%

Stuffer Hardness at 40°C: 2,5 kPa

Decomposition Temperature: >180°C

PU- Foam GA 3035 standard density

Technical Data:

Raw Density: 30 kg/m³

Cell Amount: 18/cm³

Tensile Strength: DIN 53571: 130kPa/m²

Elongation at Break: DIN 53571: 200%

Stuffer Hardness at 40°C: 3.5 kPa

Decomposition Temperature: >180°C

Swell Behavior in Solvents:

No swelling: HCl 5%, H₂SO₄ 10%,
NaOH 10%, NaOH concentrated, Mineral oil, Liquid paraffin

1-20% swelling: Acetic Acid 10%

21-100% swelling: Ethanol, Ether, Fuel Mixture (50 parts Patrol + 40 parts Benzene + 10 parts Ethanol)

100% swelling: Acetone, Benzene, Chloroform, Glacial Acetic Acid, Ethyl Acetate,
Methyl Ethyl Ketone, Carbontetrachloride

Damage: HCl concentrated

PU Foam for Gas Sampling, Typ SH-100, uncleaned

P/N	Description	Size: Height x OD [mm]	€ea.
4425050	PU-Foam GA 3035 uncleaned	50 x 50	1.85
4425060	PU-Foam GA 3035 uncleaned	50 x 60	2.55
4427560	PU-Foam GA 3035 uncleaned	76 x 60	5.40
4421010	PU-Foam GA 3035 uncleaned	100 x 100	11.85

**You need a different size foam filter type SH 100 and GA 3035 ?
No problem, we can manufacture any size you want - please ask for your price.**

Volume discounts for uncleaned filter:

Over 250 St: 5 % discount

Over 500 St: 10 % discount

Over 1000 St: 15 % discount

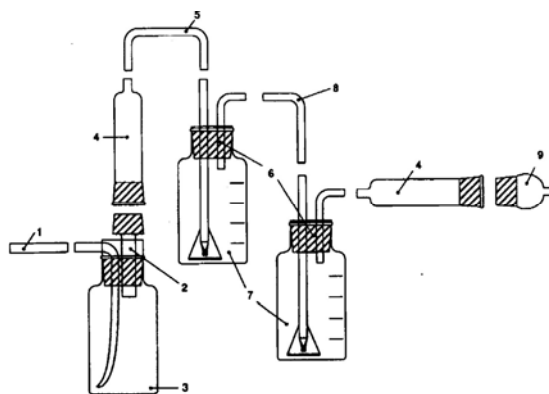
PU Foam for Gas Sampling Type GA 3035, uncleaned

P/N	Description	Size: Height x OD [mm]	V [ml]	€ea.
4410110	PU-Foam Filter GA 3035 uncleaned	10 x 10	0.8	0.55
4410120	PU-Foam Filter GA 3035 uncleaned	10 x 20	3.14	0.65
4411314	PU-Foam Filter GA 3035 uncleaned	13.5 x 140	208	2.60
4410202	PU-Foam Filter GA 3035 uncleaned	20 x 20	6.3	0.75
4415022	PU-Foam Filter GA 3035 uncleaned	50 x 22	19	1.60
4415030	PU-Foam Filter GA 3035 uncleaned	50 x 30	35	1.65
4415050	PU-Foam Filter GA 3035 uncleaned	50 x 50	98	1.70
4415055	PU-Foam Filter GA 3035 uncleaned	50 x 55	119	2.20
4415060	PU-Foam Filter GA 3035 uncleaned	50 x 60	141	2.40
4415065	PU-Foam Filter GA 3035 uncleaned	50 x 65	166	3.05
4415075	PU-Foam Filter GA 3035 uncleaned	50 x 75	221	3.90
4415082	PU-Foam Filter GA 3035 uncleaned	50 x 82	264	4.65
4415010	PU-Foam Filter GA 3035 uncleaned	50 x 100	393	6.70
4415011	PU-Foam Filter GA 3035 uncleaned	50 x 110	475	8.00
4415012	PU-Foam Filter GA 3035 uncleaned	50 x 120	565	9.65
4416050	PU-Foam Filter GA 3035 uncleaned	60 x 50	170	3.40
4417322	PU-Foam Filter GA 3035 uncleaned	73 x 22	28	2.65
4417550	PU-Foam Filter GA 3035 uncleaned	75 x 50	147	3.05
4417560	PU-Foam Filter GA 3035 uncleaned	76 x 60	215	5.15
4417575	PU-Foam Filter GA 3035 uncleaned	76 x 76	345	5.05
4418565	PU-Foam Filter GA 3035 uncleaned	85 x 65	282	5.05
4411022	PU-Foam Filter GA 3035 uncleaned	100 x 22	38	2.40
4411050	PU-Foam Filter GA 3035 uncleaned	100 x 50	196	3.15
4411055	PU-Foam Filter GA 3035 uncleaned	100 x 55	237	3.50
4411060	PU-Foam Filter GA 3035 uncleaned	100 x 60	283	4.20
4411065	PU-Foam Filter GA 3035 uncleaned	100 x 65	332	4.85
4411075	PU-Foam Filter GA 3035 uncleaned	100 x 75	442	6.40
4411010	PU-Foam Filter GA 3035 uncleaned	100 x 100	785	11.30
4411410	PU-Foam Filter GA 3035 uncleaned	140 x 100	1100	15.90
4411011	PU-Foam Filter GA 3035 uncleaned	100 x 110	950	13.95
4411013	PU-Foam Filter GA 3035 uncleaned	100 x 135	1431	16.40

You need another size?

No problem – we produce a lot of other sizes – please ask for your price !

You are interested in further information or products for sampling in exhaust gas and outside air? With pleasure we send you the corresponding special brochure!



Delivery program PU-Foams, VDI-cleaned (other sizes on request):

We also manufacture cleaned Foams:



Cleaning according VDI (Method BGI 505.47 (previous ZH 1/120.47)):
24 hours first with Toluene and then with Acetone
Other cleaning methods on Request.

PU-Foams SH 100, cleaned:

Size: Height x OD [mm]	P/N	€ea. pk/5	€ea. 25-49 pc.	€ea. 50-99 pc.	€ea. 99-249 pc.	€ea. from 250 pc.
50 x 50	4425050-VDI	89.55	11.50	8.85	8.00	7.70
50 x 60	4425060-VDI	100.55	12.90	9.95	9.05	8.60
76 x 60	4427560-VDI	122.10	15.81	12.25	11.10	10.60

PU-Foams GA 3035, cleaned:

Size: Height x OD [mm]	P/N	€ea. pk/5	€ea. 25-49 pc.	€ea. 50-99 pc.	€ea. 99-249 pc.	€ea. from 250 pc.
13.5 x 140	4411314-VDI	99.30	12.45	9.55	9.10	8.20
50 x 22	4415022-VDI	77.80	5.35	4.10	3.90	3.55
50 x 30	4415030-VDI	88.30	7.20	5.55	5.30	4.75
50 x 35	4415035-VDI	88.30	7.80	6.00	5.70	5.10
50 x 45	4415045-VDI	88.30	9.05	7.00	6.60	5.95
50 x 50	4415050-VDI	88.30	11.30	8.60	8.15	7.35
50 x 55	4415055-VDI	99.30	11.85	9.15	8.70	7.80
50 x 60	4415060-VDI	99.30	12.70	9.75	9.25	8.30
50 x 65	4415065-VDI	110.35	13.20	10.15	9.65	8.70
50 x 75	4415075-VDI	110.35	14.15	10.90	10.25	9.25
50 x 100	4415010-VDI	176.55	19.35	14.90	14.20	12.80
50 x 110	4415011-VDI	176.55	22.20	17.10	16.25	14.65
50 x 120	4415012-VDI	176.55	22.80	17.55	15.80	14.20
73 x 22	4417322-VDI	88.30	6.65	5.10	4.85	4.40
75 x 50	4417550-VDI	99.30	12.00	9.25	8.80	8.00
100 x 18	4411018-VDI	88.30	5.80	4.50	4.30	3.90
100 x 22	4411022-VDI	88.30	6.65	5.10	4.80	4.35
100 x 100	4411010-VDI	241.05	29.40	22.60	21.45	19.35
100 x 110	4411011-VDI	241.05	30.80	23.70	22.55	20.25

We pack the cleaned PU foam filter as standard in flat bags made of aluminum composite foil.

On request, we can pack with surcharge many sizes individually in glass containers with screw cap and PTFE coated seal.

When necessary, please send us your request.



Sorbent glass tubes



Florisol[®] glass tubes for gas sampling

Florisol[®] glass tubes are e. g. used for sampling of ambient air for PCB analysis.

- Length: 100 mm
- Inner Diameter: 8 mm
- Florisol[®] is a magnesium silicate with excellent adsorption characteristics
- highest purity and quality
- recommended in PCB guideline NRW, Germany and in VDI standard 2462, page 1
- manufactured by CS
- applicability tested by an accredited laboratory

The sample tubes (P/N 07225110) includes a collecting area and a perforation area, apated by silanized glass wool. After sampling they can be retrieved separately.

P/N	Description	€pk.
07225110	sampling tube, Florisol [®] 100 mm x 10 mm OD x 8 mm ID, 2 areas, 10 pcs./pk	78.50



Production of sampling tubes in other dimensions is possible on demand.
Please request your quote.

Florisol[®] Cartridges for H53 Analysis



Florisol[®]-Cartridges

Florisol[®] glass tubes were especially developed for H53 analysis. They include DIN certified Florisol[®], which was conditioned before packing accordingly. The glass tubes and the fibre glass frits comply to highest purity and quality standards. In connection with conditioned packing you will get blank value optimized results.

The column exit has been created was designed according to DIN EN 9377-2, enabling excellent recoveries under hydrostatic pressure without additional equipment. On request offer suitable column holders and storage vessels for larger volumes.

Please convince yourself and request a sample! You need other fill quantities? We would appreciate to offer them!

P/N	Bezeichnung	€pk.
472042-G	Pk. a 50 St. SPE-Cartridge Na ₂ SO ₄ /Florisol [®] , glass, 15 ml volume, contain each 2000 mg Na ₂ SO ₄ and Florisol [®]	118.30

Solid-Phase Extraction (SPE)



The solid-phase extraction has become the method of choice to prepare samples for analysis. For BEKOlut® SPE cartridges only approved materials are used so that you can rely on consistent quality.

- Spherical sorbents for Normal- and Reversed Phase extraction
- Optimized packing density due to spherical particles
- Even flow characteristic
- No blockage of the column
- High and proofed purity of sorbents, frits and cartridges
- Cartridges of High pure PP (Polypropylene) or Glass
- Excellent reproducibility of lot to lot

P/N	Phase	Volume [ml]	Content [mg]	ea./pk.	€pk.
472001	C18e	1	100	100	123.30
472002	C18e	3	200	50	80.40
472003	C18e	3	500	50	96.50
472004	C18e	6	200	30	59.00
472005	C18e	6	500	30	66.30
472006	C18e	6	1000	30	91.10
472007	C18e	6	2000	30	138.30
472008	C18e	15	2000	30	99.40
472009	C18	1	100	100	123.30
472010	C18	3	200	50	80.40
472011	C18	6	500	30	59.00
472012	C8	1	100	100	128.60
472013	C8	3	200	50	86.80
472014	C8	6	500	30	67.40
472015	NH ₂	1	100	100	150.00
472016	NH ₂	3	200	50	115.80
472017	NH ₂	6	500	30	85.80
472018	CN	1	100	100	150.00
472019	CN	3	200	50	115.80
472020	CN	6	500	30	85.80
472021	Si	1	100	100	120.00
472022	Si	3	200	50	91.50
472023	Si	6	500	30	57.20
472024	Florisil®	3	500	50	92.60
472025	Florisil®	6	500	30	61.80
472031	Si-SCX	1	100	100	160.80
472032	Si-SCX	3	200	50	142.50
472033	Si-SCX	6	500	30	107.20
472034	Carbon S3	6	1000	30	160.80
472035	Carbon S3	6	500	30	128.60
472036	NH ₂ /Carbon	6	500 / 500	30	155.40
472037	Carbon	6	500	30	96.50
Glass Cartridges					
472025-G	Florisil®	6	500	30	139.00
472042-G	Na ₂ SO ₄ /Florisil®	15	2 x 2000	50	118.30

QuEChERS-Kits

* Sorptionmix 1 = Graphitized Carbon Black and MgSO₄ at the ratio of 1+59

* Sorptionmix 2 = Graphitized Carbon Black and MgSO₄ at the ratio of 1+19



P/N	Application	Description	Quantity ea./pk	Contents	€pk.
392101	Samples with low fat content	PSA-Kit-01 for 1 ml extract	100	25 mg PSA 150 mg MgSO ₄	109.50
392102		PSA-Kit-02 for 6 ml extract	50	150 mg PSA 900 mg MgSO ₄	77.50
392103	Samples with high fat content	PSA-Kit-03 for 1 ml extract	100	25 mg PSA, 25 mg C18, 150 mg MgSO ₄	109.50
392104		PSA-Kit-04 for 6 ml extract	50	150 mg PSA, 150 mg C18, 900 mg MgSO ₄	77.50
392105	Samples with moderate content of Chlorophyll and Carotinoids	PSA-Kit-05 for 1 ml extract	100	Sorptionmix 1* 25 mg PSA	109.50
392106		PSA-Kit-06 for 6 ml extract	50	Sorptionmix 1* 150 mg PSA	77.50
392107	Samples with high content of Chlorophyll and Carotinoids	PSA-Kit-07 for 1 ml extract	100	Sorptionmix 2* 25 mg PSA	109.50
392108		PSA-Kit-08 for 6 ml extract	50	Sorptionmix 2* 150 mg PSA	85.00
392109	Citrat-Kit-01 for 10 g food sample / 10 ml Acetonitrile		50	4g MgSO ₄ , 1g NaCl, 1g Na ₃ -Citrate•2H ₂ O, 0,5g Na ₂ H-Citrate•1,5H ₂ O	86.85

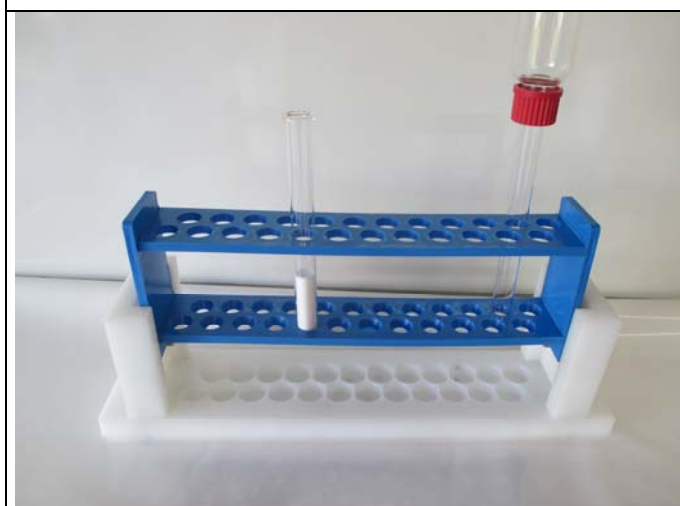
Equipment for Solid Phase Extraction (SPE)



Vacuum manifold for SPE

For convenient vacuum processing of either 12 or 24 samples we recommend our vacuum-manifold with solvent-waste tray. The manifold is made from vacuum resistant glass and chemically inert plastic parts. Spare parts and seals are available as well.

Item No.	Description	Price €
472200	Vacuum manifold 12 samples	659.00
472210	Vacuum manifold 24 samples	910.00
More equipment for SPE (e. g. cartridges, frits etc.) please see below or on request		



SPE column rack

- made of high-quality polypropylene
- height adjustable for optimal working position when using different vials
- (blue) holder for storage of columns
- base plate contains pre-milled slots for vials (=column is in alignment with the collection tube)
- for higher sample volumes: use storage vessels up to 120 ml, connection to the column by screw cap incl. PTFE ring



Equipment für SPE column rack

Item No.	Description	Price €
472250	Column rack, complete	550.00
472255	Storage vessel 120 ml incl. screw cap and seal, 3/pk.	105.00
472256	Replacement seals, 10/pk.	28.00
472260	Empty glass column, 6 ml, 150/pk.	175.00
472261	Empty glass column, 104 x 17 mm, 150/pk.	130.00
472262	Empty glass column, 180 x 17 mm, 150/pk.	140.00



Insert for 12-sample manifold

Type CS, suitable for different glass basins, e.g. Bekolut, Supelco etc.
 Dimensions: 1680 x 790 x 130 mm (L x W x H)
 Height positions in 8 stages adjustable, 12 holes (Ø 17.5 mm)

061040	Insert for 12-sample manifold, Type CS	197.00
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General SPE Equipment

392011	Empty PP columns, 3 ml incl. 200 PE frits, 10 µm, 100/pk.	98.00
392012	Empty PP columns, 6 ml incl. 200 PE frits, 10 µm, 100/pk.	110.00
392015	Empty glass column, 6 ml incl. 60 glass fiber filter, 30/pk.	159.00

Accessories for Chromatography

Sample preparation

Vacuum Filtration Apparatus Type „CS“

	Description	P/N	€ea.
	Vacuum Filtration Apparatus 1000 ml incl. upper glass part 250 ml, lower glass part with NS 40/4545 and frit with PTFE ring and filtration bottle 1000 ml with NS 40/35 <i>Delivery includes 50 pc. membrane filter, P/N 390140</i>	390100	282.30
	Vacuum Filtration Apparatus 2000 ml incl. upper glass part 250 ml, lower glass part with NS 40/45 and frit with PTFE ring and filtration bottle 2000 ml with NS 40/35 <i>Delivery includes 50 pc. membrane filter, P/N 390140</i>	390110	327.60
	Spare parts: Upper glass part 250 ml	390101	50.00
	Aluminium clamp	390102	44.10
	Lower glass part with NS 45 and frit 1000 ml	390103	157.60
	Lower glass part with NS 45 and frit 2000 ml	390113	
Erlenmeyer bottle NS 45, 1000 ml	390104	61.00	
Erlenmeyer bottle NS 45, 2000 ml	390114	106.10	

Membrane Filter 47 mm diameter, 50/pk.

Product	Medium	Pore-Ø	Filter-Ø	P/N	€/pk.
Cellulose Acetate	aqueous	0.45 µm	47 mm	390458	74.20
Cellulose Mixed Ester	aqueous/organic	0.2 µm	47 mm	390270	54.60
Cellulose Mixed Ester	aqueous/organic	0.45 µm	47 mm	390260	54.60
Regenerated Cellulose	aqueous/organic	0.2 µm	47 mm	390425	86.00
Regenerated Cellulose	aqueous/organic	0.45 µm	47 mm	390420	86.00
Polyvinylidene fluoride (PVDF)	aqueous/organic	0.2 µm	47 mm	390330	82.00
Polyvinylidene fluoride (PVDF)	aqueous/organic	0.45 µm	47 mm	390320	82.00
Polypropylene	aqueous/organic	0.2 µm	47 mm	390390	131.40
Polypropylene	aqueous/organic	0.45 µm	47 mm	390380	131.40
Polyamide (Nylon)	basic/organic	0.2 µm	47 mm	390150	57.20
Polyamide (Nylon)	basic/organic	0.45 µm	47 mm	390140	57.20
PTFE	acids and	0.2 µm	47 mm	390210	74.70
PTFE	bases	0.45 µm	47 mm	390200	74.70
Glass fibre		1.0 µm	47 mm	390457	51.50

HPLC-Optigrade®-Solvents

Program: LGC Standards

CS P/N	Solvent	Original-P/N	Purity	max. Absorption	max. Water	Bottle Volume	€ea.
050100	Acetone	2435	99.5 %	0.01 bei 370 nm	0.5 %	4 Liter	53.70
050101	Acetonitrile	2856	99.8 %	0.01 bei 230 nm	0.02 %	1 Liter	33.60
05010125	Acetonitrile	2856	99.8 %	0.01 bei 230 nm	0.02 %	2.5 Liter	75.60
050102	Trichloromethane	4443	99.9 %	0.02 bei 270 nm	0.03 %	4 Liter	84.75
050103	Dichloromethane	4879	99.8 %	0.01 bei 254 nm	0.02 %	4 Liter	62.20
050104	n-Heptane	5139	95.0 %	0.01 bei 254 nm	0.02 %	4 Liter	142.00
050105	n-Hexane	5167	99.8 %	0.01 bei 254 nm	0.01 %	4 Liter	120.00
050106	Methanol	3041	99.9 %	0.01 bei 254 nm	0.05 %	4 Liter	34.65
050107	Tetrahydrofuran	2858	99.8 %	0.01 bei 300 nm	0.03 %	1 Liter	51.25
050108	Tetrahydrofuran	2858	99.8 %	0.01 bei 300 nm	0.03 %	4 Liter	164.00
050109	Water	6795	pH 5.0-8.0	Evaporation residue: max. 1 ppm		4 Liter	32.20

HPLC Solvents

Program Biosolve

- Standard 2.5 liter Glass Bottle
- Water now in plastic bottles without plasticizer
- Purity classes: HPLC Gradient and HPLC Supra-Gradient
- New Purity: LC/MS for Acetonitrile, Methanol and Water < 0,1 ppm Ca, K, Mg, Na







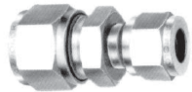



P/N	Solvent	Purity	% T/nm	€2.5 Liter	
04900102	Acetone	99.9 %	85/340-98/350	38.00	
04902102	Acetonitrile R (Standard grade)	99.9 %	92/200-97/230	47.60	
04900202	Acetonitrile S (gradient grade)	99.95 %	95/200-98/220	61.20	
04900302	Acetonitrile Supra-Gradient	99.97 %	97/200-98/220	71.40	
04901802	Acetonitrile LC-MS	99.9 %	95/200-98/220	71.40	
049012041	Acetonitrile ULC-MS	99.97 %	97/200-98/220	100.30	
04900402	Trichloromethane	99.9 %	70/255-98/280	46.00	
04900502	Cyclohexane	99.9 %	78/230-98/250	51.00	
04900602	Dichloromethane*	99.9 %	90/245-99/260	40.00*	
04900902	Ethyl acetate	99.9 %	80/220-98/250	42.00	
04901402	n-Heptane*	98.0 %	85/220-99/245	58.00*	
04901502	n-Hexane*	98.0 %	70/255-98/280	48.00*	
04901202	Methanol	99.9 %	30/210-85/235	19.00	
04901302	Methanol Supra-Gradient	99.9 %	40/210-85/235	30.00	
04902002	Methanol LC-MS	99.95 %	40/210-80/230	30.00	
049136841	Methanol ULC-MS	99.95 %	40/210-80/230	55.00	
04901002	iso-Octane*	98.5 %	85/225-90/235	66.00*	
04901102	iso-Propanol*	99.8 %	80/230-99/270	39.00*	
04901602	Tetrahydrofuran	99.8 %	88/270-99/310	62.00	
04901705	Water	(5 liter)	18MΩxcm	254: 1μAU	42.00*
04901901	Water LC-MS	(1 liter)	>18MΩxcm-	100	14.00*
049232141	Water ULC-MS	(2.5 liter)	>18MΩxcm-	100	56.00*





*Minimum order: 4 bottles

MULTOCLEAR® - 04						
Filter Housing and Ø: Polypropylene, 6.5 mm						
P/N	Colour Code	Filter Membrane			€ pk/100	
		Pore Size	Material	Filter-Ø		
390841	no, natural	0,2 µm	PTFE	4 mm	134.50	
390842	no, natural	0,45 µm	PTFE	4 mm	134.50	
390843	no, natural	0,2 µm	PA	4 mm	134.50	
390844	no, natural	0,45 µm	PA	4 mm	134.50	
390845	no, natural	0,2 µm	CA	4 mm	134.50	
390846	no, natural	0,45 µm	CA	4 mm	135.00	
390849	no, natural	0,2 µm	PVDF	4 mm	159.50	
390850	no, natural	0,45 µm	PVDF	4 mm	158.50	
390851	no, natural	0,2 µm	PP	4 mm	132.50	
390852	no, natural	0,45 µm	PP	4 mm	132.50	
390853	no, natural	0,2 µm	RC	4 mm	135.00	
390854	no, natural	0,45 µm	RC	4 mm	134.50	
MULTOCLEAR® - 13						
Filter Housing and Ø: Polypropylene, 17 mm						
390821	light blue	0,2 µm	PTFE	13 mm	98.00	
390822	light blue	0,45 µm	PTFE	13 mm	98.00	
390823	light green	0,2 µm	PA	13 mm	90.00	
390824	green	0,45 µm	PA	13 mm	90.00	
390825	yellow	0,2 µm	CM	13 mm	94.00	
390826	yellow	0,45 µm	CM	13 mm	94.00	
390829	rose	0,2 µm	PVDF	13 mm	93.50	
390830	red	0,45 µm	PVDF	13 mm	93.50 	
390831	natural	0,2 µm	PP	13 mm	101.50	
390832	white	0,45 µm	PP	13 mm	101.50	
390833	light green	0,2 µm	PA-LE	13 mm	90.00	
390834	green	0,45 µm	PA-LE	13 mm	90.00	
390835	light brown	0,2 µm	RC	13 mm	97.50	
390836	brown	0,45 µm	RC	13 mm	97.50	
390837	light orange	0,2 µm	CA	13 mm	94.00	
390838	orange	0,45 µm	CA	13 mm	94.00 	
390839	violet	0,45 µm	PES	13 mm	91.00	
MULTOCLEAR® - 25						
Filter Housing and Ø: Polypropylene, 30 mm						
390801	light blue	0,2 µm	PTFE	25 mm	125.00	
390802	light blue	0,45 µm	PTFE	25 mm	125.00	
390803	green	0,2 µm	PA	25 mm	96.00	
390804	green	0,45 µm	PA	25 mm	96.00	
390805	yellow	0,2 µm	CM	25 mm	95.50	
390806	yellow	0,45 µm	CM	25 mm	95.50 	
390809	red	0,2 µm	PVDF	25 mm	109.00	
390810	red	0,45 µm	PVDF	25 mm	109.00 	
390811	white	0,2 µm	PP	25 mm	141.00	
390812	white	0,45 µm	PP	25 mm	141.00	
390813	light green	0,2 µm	PA-LE	25 mm	99.00	
390814	green	0,45 µm	PA-LE	25 mm	99.00 	
390815	light brown	0,2 µm	RC	25 mm	119.00	
390816	brown	0,45 µm	RC	25 mm	119.00 	
390819	violet	0,45 µm	PES	25 mm	106.60	

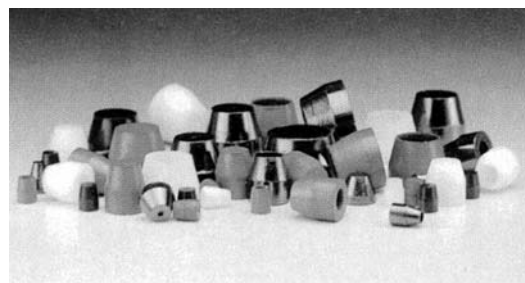
Fittings: Nuts, Ferrules, Unions, Tees and Valves

Gyrolok® Tube Fittings			Brass		Stainless Steel (SS316)	
			P/N	€ea.	P/N	€ea.
Nut		1/16"	491103	2.65	4910050	7.20
		1/8"	491143	1.80	4910051	4.50
		1/4"	491126	1.85	4910052	4.00
Front Ferrule		1/16"	491101	2.45	491051	3.90
		1/8"	491111	1.55	491115	2.70
		1/4"	491114	1.75	491116	2.30
Back Ferrule		1/16"	491102	2.30	491052	3.60
		1/8"	491112	1.55	491118	2.40
		1/4"	491117	1.75	491119	2.20
Cap		1/16"	491120	7.10	491123	19.20
		1/8"	491121	4.30	491124	11.40
		1/4"	491122	3.80	491125	10.10
Union		1/16"	491104	11.40	491053	34.50
		1/8"	491113	8.95	491128	20.20
		1/4"	491127	7.90	491129	20.00
Tee		3 x 1/16"	491130	26.90	491133	64.80
		3 x 1/8"	491131	20.10	491134	43.40
		3 x 1/4"	491132	19.80	491135	40.20
Reducing Union		1/8" x 1/16"	491136	9.90	491139	26.70
		1/4" x 1/16"	491137	9.90	491140	21.80
		1/4" x 1/8"	491138	7.90	491141	19.90
Plug		1/16"	491150	7.45	491153	20.90
		1/8"	491151	3.75	491154	11.90
		1/4"	491152	3.75	491155	9.50

More Fittings on request

On-Off Toggle Valve	Fittings:	Brass		Stainless Steel (SS316)		
		P/N	€ea.	P/N	€ea.	
Toggle Valve – max. 20 bar (Straight Pattern)		1/8"	4912001	75.50	4912101	123.30
		1/4"	4912002	75.50	4912102	112.10
Toggle Valve – max. 20 bar (Angle Pattern)		1/8"	4912003	78.20		
Fine Metering Valve, Needle 3°						
Metering Valve – max. 350 bar (Straight Pattern)		1/8"	4912004	125.60	4912104	178.00
		1/4"	4912005	132.50	4912105	178.30
Metering Valve – max. 350 bar (Angle Pattern)		1/8"	4912006	123.80	4912106	161.60
		1/4"	4912007	120.80	4912107	163.10

Ferrules made of Graphit, Polyimide, graphite-impregnated Polyimide and PTFE pk/10



Fitting	Bore-Ø	Graphite T max. = 450 °C		Vespel T max. = 350 °C		VG 15 Polyimide+15% Graphite T max. = 400 °C		VG 40 Polyimide+40% Graphite T max. = 400 °C		PTFE T max. = 250°C	
		P/N	€pk	P/N	€pk	P/N	€pk	P/N	€pk	€pk	P/N
1/16"	ohne	190027	32.30	193027	43.90	193008	43.65	193051	43.65	193101	21.55
	0.4 mm	190001	32.30	-	-	193014	43.65	190034	43.65	193111	21.55
	0.5 mm	190002	32.30	-	-	193015	43.65	190035	43.65	193112	21.55
	0.8 mm	190003	32.30	-	-	193016	43.65	190036	43.65	193113	21.55
	1.0 mm	190004	32.30	-	-	-	-	-	-	-	-
	1.2 mm	190005	32.30	-	-	-	-	-	-	-	-
	1/16"	190019	32.30	193019	43.90	-	-	193050	43.65	193104	21.55
Agilent (kurz)	0.4 mm	-	-	-	-	193020	43.65	190050	45.20	-	-
	0.5 mm	190021	32.60	-	-	193021	43.65	190051	45.20	-	-
	0.8 mm	190022	32.60	-	-	193022	43.65	190052	45.20	-	-
Thermo	0.4 mm	190014	32.30	-	-	-	-	-	-	-	-
	0.5 mm	190015	32.30	-	-	-	-	-	-	-	-
	0.8 mm	190016	32.30	-	-	-	-	-	-	-	-
1/8"	ohne	190028	32.30	193028	46.55	193010	46.55	193052	46.55	193102	21.55
	0.4 mm	190006	32.30	-	-	-	-	190037	46.55	193114	21.55
	0.5 mm	190007	32.30	-	-	-	-	190039	46.55	193115	21.55
	0.8 mm	190008	32.30	-	-	-	-	190046	46.55	193116	21.55
	1/16"	190009	32.30	193009	46.55	-	-	190048	46.55	193105	21.55
	1/8"	190023	32.30	193023	46.55	-	-	190053	46.55	193107	21.55
6 mm (Ermeto)	1/8"	-	-	190042	54.65	-	-	-	-	-	-
	6 mm	-	-	190044	54.65	-	-	-	-	-	-
	1/4"	-	-	190043	54.65	-	-	-	-	-	-
1/4"	ohne	190029	32.30	193029	55.85	-	-	193053	47.85	193103	21.55
	0.5 mm	190011	32.30	-	-	-	-	190040	47.85	-	-
	0.8 mm	190012	32.30	-	-	-	-	190047	47.85	-	-
	1/16"	190013	32.30	193013	55.85	-	-	190049	47.85	193106	21.55
	1/8"	190025	32.30	193025	55.85	-	-	190054	47.85	193108	21.55
	6 mm	190026	32.30	193026	55.85	-	-	190056	47.85	193109	21.55
	1/4"	190024	32.30	193024	55.85	-	-	190055	47.85	193110	21.55

Ferrules 1/32", 1/16" and 1/8" for HPLC, pk/10 *pk/5

Fitting	Bore-Ø	PEEK Polyetheretherketone		Kel-F Polychlorotrifluoroethene		PTFE		VG 40 Polyimide/Graphite		Stainless Steel	
		P/N	€pk	P/N	€pk	P/N	€pk	P/N	€pk	P/N	€pk
1/32"	1/32"	492ZF.5 PK-10	49.60	-	-	492ZF.5 TF-10	88.20	492ZF.5 GV-5	*51.50	492ZF.5-10	44.10
1/16"	1/16"	590525	40.85	492ZF1 KF-10	50.00	193104	21.55	193050	43.65	590016-10	12.50
1/8"	1/8"	492ZF2 PK-10	50.00	-	-	193107	21.55	190053	46.55	492ZF2-10	26.50

Aluminium-Ferrules for Thermo/Fisons/Carlo Erba/DANI-Fittings for 2 mm OD SS Tubing

Art.-Nr.	Bezeichnung	€pk
190070	Aluminium Ferrule for 1/8" Fitting, Bore Ø 2 mm	pk/10 36.85
190071	Aluminium Ferrule for Fisons Fittings for 2 mm OD SS tubing	pk/10 36.85
Stainless Steel Tubing with 2 mm OD: see page 44, P/N 198010		

Capillary and Tubing



Stainless Steel Capillary 1/16" OD ¹⁾ (Prectut Tubing, precise cut)

	P/N	€ea.	P/N	€ea.	P/N	€ea.	P/N	€ea.	P/N	€ea.
Length x ID	0.12 mm		0.25 mm		0.5 mm		0.75 mm		1.0 mm	
50 mm	590116	4.25	590101	4.15	590102	3.95	590103	4.10	590104	5.95
100 mm	590115	5.65	590119	5.35	590122	4.90	590129	5.35	590136	8.90
200 mm	590114	8.20	590118	7.60	590121	6.85	590128	7.60	590135	14.75
300 mm	590113	10.80	590117	9.90	590120	8.90	590127	9.90	590134	20.65

Stainless Steel Capillary 1/32" and 1/16" OD (soft calcined, lengths up to 100 m, coil diameter 30-33 cm)

P/N	Description	Material Code.	Max. Pressure	€m 1-9 m -01	€m 10-49 m -10	€m + 50 m -50
Appendix*	→					
590150	Stainless Steel Capillary 1/32" OD x 0.18 mm ID	1.4435	1000 bar	28.40	25.55	23.00
590112	Stainless Steel Capillary 1/16" OD x 0.13 mm ID	1.4401	1000 bar	14.15	12.70	11.45
590149	Stainless Steel Capillary 1/16" OD x 0.17 mm ID	1.4402	1000 bar	11.05	10.25	9.45
590045	Stainless Steel Capillary 1/16" OD x 0.25 mm ID	1.4401	1000 bar	9.95	9.30	8.65
590041	Stainless Steel Capillary 1/16" OD x 0.50 mm ID	1.4401	1000 bar	8.70	7.85	7.05
590126	Stainless Steel Capillary 1/16" OD x 0.75 mm ID	1.4401	800 bar	7.70	7.25	6.90
590133	Stainless Steel Capillary 1/16" OD x 1.0 mm ID	1.4401	500 bar	7.70	7.25	6.90

Fittings, Ferrules, Unions, Tees and Crosses 1/32" and 1/16" OD

(1/16" with thread UNF 10/32, 4.7 mm OD; 1/32" with thread UNF 6/40)


P/N	Description		€ea. 1-9 pc. -01	€ea. +10 pc. -10
Appendix*	→			
590151	Stainless Steel Ferrule 1/32"		4.90	4.65
590016	Stainless Steel Ferrule 1/16"		1.30	1.25
590152	Stainless Steel Fitting 1/32" normal		4.90	4.65
590153	Stainless Steel Fitting 1/32" long		6.05	5.75
590011	Stainless Steel Fitting 1/16"		3.05	2.90
590154	Stainless Steel Union 1/32" - 1/32" (bore 0.25 mm)		41.50	-
590155	Stainless Steel Union 1/32" - 1/16" (bore 0.25 mm)		41.50	-
590031	Stainless Steel Union 1/16" - 1/16" (bore 0.5 mm) (other unions see page 61)		27.50	-
491208	Stainless Steel Tee 1/16" (bore 0.5 mm)		84.90	-
491220	Stainless Steel Cross 1/16" (bore 0.5 mm)		105.15	-

Copper and Stainless Steel Tubing (soft calcined, lengths up to 100 m, different coil diameters 30 to 50 cm)

P/N	Description	Material Code	Max. Pressure	€m 1-9 m -01	€m 10-49 m -10	€m + 50 m -50
Appendix*	→					
198004	Copper Tubing, 1/8" OD x 2.0 mm ID	Cu-DHP	227 bar	5.15	4.65	4.20
198030	Copper Tubing, 6.0 mm OD x 4.0 mm ID	Cu-DHP	200 bar	7.40	6.65	6.00
198015	Copper Tubing, 1/4" OD x 4.8 mm ID	Cu-DHP	139 bar	6.70	6.05	5.45
198010	Stainless Steel Tubing 2.0 mm OD x 1.0 mm ID	1.4301	500 bar	6.25	5.65	5.05
198001	Stainless Steel Tubing 1/8" OD x 2.0 mm ID	1.4541	400 bar	5.95	5.35	4.80
198055	Inno Steel Tubing 1/8" OD x 2.1 mm ID	1.4306	400 bar	14.65 €ft		
198032	Stainless Steel Tubing 3.0 mm OD x 2.0 mm ID	1.4301	300 bar	8.80	7.95	7.15
198017	Stainless Steel Tubing 4.0 mm OD x 3.0 mm ID	1.4301	300 bar	9.25	8.30	7.50
198002	Stainless Steel Tubing 6.0 mm OD x 4.0 mm ID	1.4541	400 bar	8.90	8.00	7.20
198003	Stainless Steel Tubing 1/4" OD x 5.3 mm ID	1.4541	250 bar	10.15	9.15	8.35

* Appendix → see page 93

Plastic Tubing (PTFE, PEEK, Tefzel, FEP, PFA)

P/N	Description		max. Pressure	€m 1-9 m -01	€m +10 m -10
Appendix*	→				
590513	PTFE-Tubing 1/16" OD x 0.3 mm ID		55 bar	3.50	3.20
590514	PTFE-Tubing 1/16" OD x 0.5 mm ID		50 bar	3.50	3.20
590515	PTFE-Tubing 1/16" OD x 0.8 mm ID		37 bar	3.00	2.70
198020	PTFE-Tubing 1/16" OD x 1.0 mm ID		25 bar	3.00	2.70
590071	PTFE-Tubing 2.1 mm OD x 1.5 mm ID		10 bar	3.00	2.70
198022	PTFE-Tubing 1/8" OD x 1.6 mm ID		18 bar	3.70	3.30
198025	PTFE-Tubing 4.0 mm OD x 3.0 mm ID		17 bar	4.10	3.80
198024	PTFE-Tubing 6.0 mm OD x 4.0 mm ID		17 bar	5.90	5.30
198026	PTFE-Tubing 1/4" OD x 4.3 mm ID		17 bar	6.60	6.00
5905604	PEEK-Tubing 1/32" OD x 0.10 mm ID	Black	455 bar	18.40	16.60
5905605	PEEK-Tubing 1/32" OD x 0.13 mm ID	Red	414 bar	18.40	16.60
5905610	PEEK-Tubing 1/32" OD x 0.25 mm ID	blue	338 bar	18.40	16.60
5905620	PEEK-Tubing 1/32" OD x 0.5 mm ID	orange	207 bar	18.40	16.60
590656	PEEK-Tubing 1/16" OD x 0.13 mm ID	red	460 bar	9.00	8.10
590657	PEEK-Tubing 1/16" OD x 0.17 mm ID	yellow	440 bar	9.00	8.10
590658	PEEK-Tubing 1/16" OD x 0.25 mm ID	blue	420 bar	9.00	8.10
590659	PEEK-Tubing 1/16" OD x 0.5 mm ID	orange	345 bar	9.00	8.10
590660	PEEK-Tubing 1/16" OD x 0.75 mm ID	green	262 bar	9.00	8.10
590539	PEEK-Tubing 1/8" OD x 1.6 mm ID	natural	179 bar	26.70	24.00
590519	Tefzel-Tubing 1/16" OD x 0.25 mm ID		186 bar	6.10	5.50
590520	Tefzel-Tubing 1/16" OD x 0.5 mm ID		152 bar	5.80	5.20
590588	Tefzel-Tubing 1/8" OD x 1.6 mm ID		110 bar	13.00	11.70
590589	Tefzel-Tubing 6.0 mm OD x 4.0 mm ID		83 bar	13.00	11.70
590580	FEP-Tubing 1/16" OD x 0.25 mm ID		117 bar	4.30	3.90
590581	FEP-Tubing 1/16" OD x 0.5 mm ID		96 bar	3.90	3.60
590582	FEP-Tubing 1/16" OD x 0.75 mm ID		76 bar	3.60	3.20
590583	FEP-Tubing 1/16" OD x 1.0 mm ID		52 bar	3.60	3.20
590584	FEP-Tubing 1/8" OD x 1.6 mm ID		69 bar	9.70	8.80
590585	FEP-Tubing 1/4" OD x 4.35 mm ID		45 bar	10.90	9.80
590586	PFA-Tubing 1/16" OD x 0.5 mm ID		100 bar	8.20	7.40
590587	PFA-Tubing 1/16" OD x 0.75 mm ID		76 bar	4.70	4.30
590590	PFA-Tubing 1/8" OD x 1.6 mm ID		75 bar	8.30	7.50

PTFE=Polytetrafluoroethylene, PEEK=Polyetheretherketone, Tefzel (ETFE)=Polyethylenetetrafluoroethylene, FEP=Fluoroethylenpropylene, PFA(TFA)=Polytetraethylenepfluoroalkylvinyl ether

* Appendix → see page 93


TIP: Tubing Cutter on page 68!

Nano Tight Fittings and Sleeves



For connecting capillaries with small OD's, e.g. from PEEK or Fused Silica to 10-32 UNF standard coned ports.

The Nano Tight Kit contains:

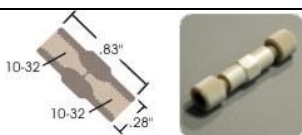


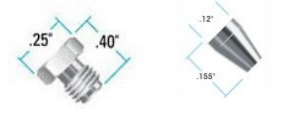
4 pcs. Nano Tight Fittings PEEK (052F-330N), Ferrules (052F-142N)
and 10 pcs. FEP Tubing Sleeves (length 4 cm, up to 50°C and 276 bar).

	P/N	Description	Unit	€ea./pk.
	0521242	Nano Tight Kit (10 pcs. 052F-242 + 4 pcs. 052F-330N) for 360 µm OD-Capillary	ea.	41.20
	0521244	Nano Tight Kit (10 pcs. 052F-244 + 4 pcs. 052F-330N) for 510 µm OD-Capillary	ea.	61.55
	052F-242	FEP-Tubing Sleeve 1/16" OD for 360 µm OD-Capillary, green	ea.	3.05
	052F-242X	dto.	pk/10	29.45
	052F-244	FEP-Tubing Sleeve 1/16" OD for 510 µm OD-Capillary, natural	ea.	3.05
	052F-228	PEEK-Tubing Sleeve 1/16" OD for 225-265 µm Capillary, blue	ea.	8.00
	052F-229	PEEK-Tubing Sleeve 1/16" OD for 275-315 µm Capillary, natural	ea.	5.40
	052F-230	PEEK-Tubing Sleeve 1/16" OD for 350-390 µm Capillary, orange	ea.	5.40
 <p>052F-330 incl. 052F-142</p>	052F-330N	10-32 Long Nut, PEEK, natural, incl. Ferrule 052F-142N	ea.	n.lav.
	052F-330N-25	dto.	from a qty. of 10 pcs.	n.lav.
	052F-330	10-32 Long Nut, PEEK, natural, incl. Ferrule 052F-142	ea.	10.10
	052F-330X	dto.	pk/10	74.65
 <p>052F-300 incl. 052F-142</p>	052F-300	10-32 Long Double-Winged-Nut, PEEK, natural incl. Ferrule 052F-142	ea.	7.75
	052F-300X	dto.	pk/10	74.65
 <p>052F-331N incl. 052F-142N</p>	052F-331	10-32 Short Nut, PEEK, natural, incl. Ferrule 052F-142N	ea.	11.95
	052F-331-25	dto.	from a qty. of 25 pcs.	7.75
 <p>052F-333N incl. 052F-142N</p>	052F-333N	10-32 Knur/Hex Head Nut, PEEK, natural, incl. Ferrule 052F-142N	St.	10.10
	052F-333NX	dto.	Pg. a 10 St.	74.65
 <p>052F-142/052F-142N</p>	052F-142	PEEK Ferrule for 1/16" Capillary	ea.	5.35
	052F-142X	dto.	pk/10	51.50
	052F-142N	Tefzel Ferrule for 1/16" Capillary	ea.	5.35
	052F-142NX	dto.	pk/10	51.50
	052F-113	PEEK Ferrule for 1/32" Capillary	ea.	11.15


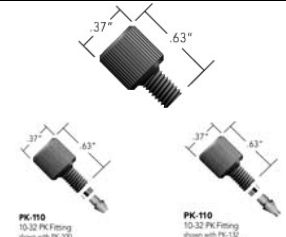
One-Piece Fingertight Fittings, up to 345 bar

	P/N	Description	Unit	€ea./pk.
 <p>052F-120 052F-130</p>	052F-120	10-32 Finger Tight Fitting, PEEK	ea.	7.75
	052F-120X	dto.	pk/10	74.65
	052F-130	10-32 Long Finger Tight Fitting, PEEK	ea.	7.75
	052F-130X	dto.	pk/10	74.65
	4006000-282	10-32 Finger Tight Fitting, PEEK, ChromTRAC Knob	pk/10	50.20

NanoTight Unions

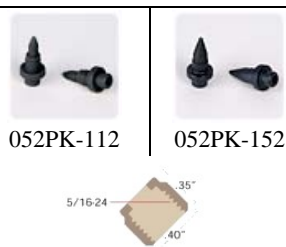
	P/N	Description	Unit	€ea./pk.
 <p>052P-779 incl. 052F-331N</p>	052P-779	10-32 NanoTight Union , PEEK, incl. Fittings 052F-331N Hole 0.13 mm, Volume 8 nL, up to 344 bar	ea.	61.15
	052P-779-01	10-32 NanoTight Union, PEEK, without Fittings	ea.	50.15
 <p>052P-770 incl. 052F-125/F-120</p>	052P-770	Micro Adapter, PEEK, incl. Fittings 052F-125/052F-120 Reducing union from 10-32 to 6-32, up to 276 bar	ea.	44.95
 <p>052U-411</p>	052U-411	10-32 NanoTight Union, Stainless Steel , up to 1380 bar incl. 2 Ea. SS-Fittings 052U-400 and 2 Ea. SS-Ferrules 052U-401 Hole 0,18 mm, Volume 13 nL	ea.	55.55
	052U-411-01	10-32 NanoTight Union, (SS), w/o Fittings and Ferrules	ea.	38.50
	052U-400	Stainless Steel (SS) Fitting for 1/16" Capillary	ea.	5.25
	052U-400X	dto.	Pk/10	50.50
	052U-401X	dto.	Pk/10	34.50

Ultra High Performance Fingertight Fittings (UHPLC)

	P/N	Description	Unit	€ea./pk.
 <p>052PK-100 052PK-132</p>	052PK-100X	1/16" PEEK Ferrule, natural, with SS-Lock Ring	Pk/10	87.10
	052PK-132	1/32" PEEK Ferrule, natural, with SS-Lock Ring	Pk/10	13.50
 <p>PK-110 10-32 Pk Fitting shown with PK-100 for 1/16" OD tubing</p> <p>PK-110 10-32 Pk Fitting shown with PK-132 for 1/32" OD tubing</p>	052PK-110X	10-32 PEEK Fitting, natural		46.15
		052PK-100 is temperature stable up to 200°C and pressure stable at room temperature up to 1140 bar 052PK-132 is temperature stable up to 200°C and pressure stable at room temperature up to 1140 bar		


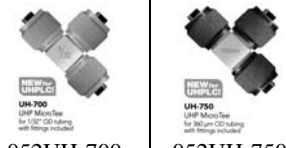
Ultra High Performance Micro Ferrules (UHPLC)

for 1/32" or 360µm Tubing, pressure stable at room temperature up to 1035 bar, at 200°C up to 480 bar

	P/N	Description	Unit	€ea.
 <p>052PK-112 052PK-152</p> <p>5/16-24 .35" .40"</p>	052PK-112	UHP Micro PEEK Ferrule, natural, for 1/32" OD-Tubing	ea.	11.35
	052PK-152	UHP Micro PEEK Ferrule, natural, for 360µm OD-Tubing	ea.	11.35
	052P-416BLK	Female PEEK Nut, black, 5/16-24 inner thread	ea.	8.35
	052P-416	Female PEEK Nut, natural, 5/16-24 inner thread	ea.	8.35

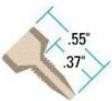



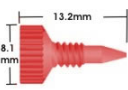
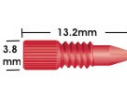
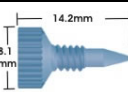
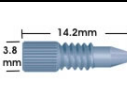
Ultra High Performance Micro Unions and Tees (UHPLC)

for 1/32" Tubing, for 360µm Tubing you need Ferrule 052F-152
pressure stable at room temperature up to 1035 bar, at 200°C up to 480 bar

	P/N	Description	Unit	€ea.
 <p>UH-432 UHP Micro Tight Union for 1/32" OD tubing with ferrule and nut are included</p> <p>UH-436 UHP Micro Tight Union for 360µm OD tubing with ferrule and nut are included</p>	052UH-432	UHP Micro Tight PEEK Union, natural, for 1/32" OD-Tubing	ea.	119.80
	052UH-436	UHP Micro Tight PEEK Union, black, for 360µm OD-Tubing, (stainless steel body) incl. Ferrule 052PK-112 and Nut 052P-416BLK	ea.	119.15
 <p>UH-700 UHP Micro Tee for 1/32" OD tubing with ferrule included</p> <p>UH-750 UHP Micro Tee for 360µm OD tubing with ferrule included</p>	052UH-700	UHP Micro Tee PEEK/SS, natural, for 1/32" OD-Tubing (stainless steel body) incl. Ferrule 052PK-112 and Nut 052P-416	ea.	172.80
	052UH-750	UHP Micro Tee PEEK/SS, black, for 360µm OD-Tubing (stainless steel body) incl. Ferrule 052PK-112 and Nut 052P-416BLK	ea.	133.95

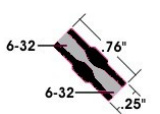
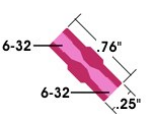
Micro Tight Fittings and Sleeves

Pressure stable with Sleeves up to 276 bar, without Sleeves up to 345 bar, max. Temperature 125°C, Thread 6-32UNF

		P/N	Description	Unit	€ea. /pk
 052F-125	 052F-125H	PEEK-MicroTight Sleeves with 640µm OD			
		052F-125	6-32 Standard Fitting for Micro Tight Sleeves	ea.	9.30
		052F-125X	dto.	pk/10	89.50
		052F-125H 052F-125HX	6-32 Headless Fitting for Micro Tight Sleeves	ea.	13.75
 052F-183	 052F-185	052F-183	PEEK-MicroTight Sleeve for 225-265µm Capillary, blue	ea.	4.55
		052F-184	PEEK-MicroTight Sleeve for 275-315µm Capillary, orange	ea.	3.05
		052F-185 052F-185X	PEEK-MicroTight Sleeve for 340-380µm Capillary, green	ea. pk/10	3.05 29.45
		052F-187	PEEK-MicroTight Sleeve for 480-520µm Capillary, natural	ea.	4.55
 052F-126S	 052F-126H	052F-126S	6-32 Standard Fitting for 1/32" OD-Tubing	ea.	9.30
		052F-126SX	dto.	pk/10	89.50
		052F-126H 052F-126H-25	6-32 Headless Fitting for 1/32" OD-Tubing	ea.	14.30
			dto.	from a qty. of 10	9.30
 052F-124S	 052F-124H	052F-124S	6-32 Standard Fitting for 360µm OD-Tubing	ea.	9.30
		052F-124SX	dto.	pk/10	
		052F-124H	6-32 Headless Fitting for 360µm OD-Tubing	ea.	9.30
		052P-555	Micro Tight Plug	ea.	8.35

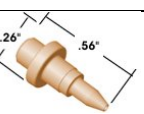
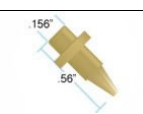
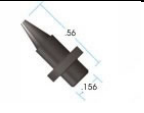

Micro Tight Unions

for 1/32" or 360µm Tubing, pressure stable with Sleeves up to 276 bar, without Sleeves up to 345 bar, max. Temperature 125°C, Thread 6-32UNF

		P/N	Description	Unit	€ea.
 052P-720	 052P-771	052P-720	Micro Tight PEEK Union, natural, for Micro Tight Sleeves incl. Fitting 052F-125	ea.	44.95
		052P-720-01	Micro Tight PEEK Union, natural, without Fittings	ea.	49.00
		052P-720-01-05	Micro Tight PEEK Union, natural, without Fittings	from a qty. of 3	37.70
		052P-771	Micro Tight PEEK Union, red, for 1/32" OD-Tubing incl. Fitting 052F-126S	ea.	44.95
	052P-771-01	Micro Tight PEEK Union, red, without Fittings	ea.	25.35	

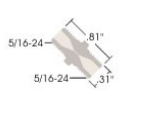

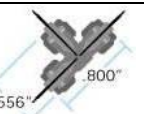

Micro Ferrules

for 1/16", 1/32", 640µm or 360µm Tubing, pressure stable up to 345 bar, max. Temperature 125°C

		P/N	Description	Unit	€ea.
 052F-112	 052F-152	052F-112	Micro PEEK Ferrule, natural, for 1/32" OD-Tubing	ea.	9.40
		052F-152	Micro PEEK Ferrule, natural, for 360µm OD-Tubing	ea.	9.40
 052F-172		052F-172	Micro PEEK Ferrule, black, for 635 µm OD-Tubing	ea.	9.40
 052P-416BLK		052P-416BLK	Female PEEK Nut, black, 5/16-24 inner thread	ea.	8.35
		052P-416	Female PEEK Nut, natural, 5/16-24 inner thread	ea.	8.35







Micro Tight Unions and Tees

for 360µm oder 640µm Tubing, for 1/16", 1/32" Tubing need you Ferrule 052F-132 resp. 052F-112, pressure stable with Sleeves up to 276 bar, without Sleeves up to 345 bar, max. Temperature 125°C

		P/N	Description	Unit	€ea.
 052P-772		052P-772	Micro Tight PEEK Union, natural, for 360 µm OD-Tubing incl. Ferrule 052F-152 and Nut 052P-416BLK	ea.	49.80
		052P-772-01	Micro Tight PEEK Union, natural, without Fittings	ea.	33.05
		052P-772-01-05	Micro Tight PEEK Union, natural, without Fittings	from a qty. of 3	25.45
		052P-775	Micro Tight PEEK Tee, natural for Micro Tight Sleeves	ea.	139.90
 052P-775		052P-775-01	incl. Ferrule 052PK-172 und Nut 052P-416 Micro Tight PEEK Tee, natural, without Fittings	ea.	96.40
		052P-888	Micro Tight PEEK Tee, black, for 360 µm OD-Tubing incl. Ferrule 052PK-152 and Nut 052P-416BLK	ea.	139.90
		052P-888-01	Micro Tight PEEK Tee, black, without Fittings	ea.	97.25





High Pressure Super Flangeless Fittings, Thread 1/4" 28 UNF

(for 1 pc. order the P/N without X at the end – Price on request)



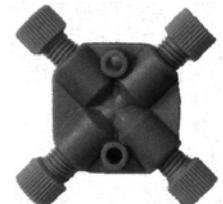
			P/N	Description	Unit	€/pk/ea.
			052P-250X	1/16" PEEK Ferrules, natural with SS Lock Rings	pk/10	40.15
052P-250X 052P-350X	052P-259X 052P-359X	052P-260X 052P-360X	052P-259X	1/16" Tefzel Ferrules, yellow with SS Lock Rings	pk/10	36.65
			052P-260	1/16" One-Piece PEEK Ferrules, natural	pcs.	6.20
			052P-251	1/16" PEEK Nuts, natural	ea.	6.15
052LT-115X			052P-251-25	1/16" PEEK Nuts, natural	from a qty. of 25.	4.00
			052P-252	1/16" Delrin Nuts, gray		1.70
			052P-255X	1/16" PEEK Nuts, natural	pk/10	38.10
			052LT-115X	1/16" Short PEEK Nuts, natural	pk/10	38.10
		052P-252X	052P-350X	1/8" PEEK Ferrules, natural with SS Lock Rings	pk/10	40.15
052P-251X	052P-252X	052P-255X	052P-359X	1/8" Tefzel Ferrules, yellow with SS Lock Rings	pk/10	36.65
			052P-360X	1/8" One-Piece PEEK Ferrules, natural	pk/10	65.30
			052P-331	1/8" PEEK Nuts, natural	ea.	4.00
			052P-332X	1/8" Delrin Nuts, black		1.70
			052P-400	1/8" PFA Teflon Nuts, natural	ea.	3.70

Low Pressure Flangeless Fittings, Thread 1/4" 28 UNF


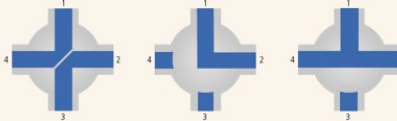






(for 1 pc. order the P/N without X at the end – Price on request)

			P/N	Description	Unit	€/pk/ea.
			052P-200X	1/16" ETFE Ferrules, blue	pk/10	15.65
052P-201X + 052P-200X			052P-200R	1/16" ETFE Ferrules, red	ea.	1.90
			052P-240	1/16" ETFE Small Valve Ferrules, natural	ea.	1.65
			052P-201	1/16" Delrin Nuts, black		1.65
052P-235X + 052P-240X			052P-202X	1/16" Delrin Nuts, red	pk/10	15.65
			052P-230	1/16" PEEK Nuts, natural	ea.	3.85
			052P-235X	1/16" PEEK Short Nuts, natural	pk/10	37.15
			052P-300X	1/8" ETFE Ferrules, yellow	pk/10	15.65
052P-302X + 052P-300NX			052P-300NX	1/8" ETFE Ferrules, natural	pk/10	15.65
			052P-340	1/8" ETFE Small Valve Ferrules, natural		1.65
			052P-301X	1/8" Delrin Nuts, black	pk/10	15.65
052P-335X + 052P-340X			052P-302-25	1/8" Delrin Nuts, red	from a qty. of 10 pcs.	1.65
			052P-330X	1/8" PEEK Nuts, natural	pk/10	37.15
			052P-335X	1/8" PEEK Short Nuts, natural	pk/10	37.15


Low Pressure PEEK Unions, Tees and Crosses, Inner Thread 1/4" 28 UNF

			P/N	Description	€/ea.
			052P-702	PEEK Union for 1/16" Tubing incl. 2 pcs. Ferrules 052P-200 + Nuts 052P-235	25.55
			052P-703	PEEK Union for 1/8" Tubing incl. 2 pcs. Ferrules 052P-300 + Nuts 052P-335	25.55
			052P-702-01	PEEK Union for 1/16" Tubing, without Ferrules and Nuts	15.45
			052P-703-01	PEEK Union for 1/8" Tubing, without Ferrules and Nuts	15.45
			052P-712	PEEK Tee for 1/16" Tubing incl. 3 pcs. Ferrules 052P-200 + Nuts 052P-235	39.50
			052P-713	PEEK Tee for 1/8" Tubing incl. 3 pcs. Ferrules 052P-300 + Nuts 052P-335	39.50
			052P-712-01	PEEK Tee for 1/16" Tubing, without Ferrules and Nuts	25.15
			052P-713-01	PEEK Tee for 1/8" Tubing, without Ferrules and Nuts	25.15
			052P-722	PEEK Cross for 1/16" Tubing incl. 4 pcs. Ferrules 052P-200 + Nuts 052P-235	49.20
			052P-723	PEEK Cross for 1/8" Tubing incl. 4 pcs. Ferrules 052P-300 + Nuts 052P-335	49.20
			052P-722-01	PEEK Cross for 1/16" Tubing, without Ferrules and Nuts	29.05
			052P-723-01	PEEK Cross for 1/8" Tubing, without Ferrules and Nuts	29.05

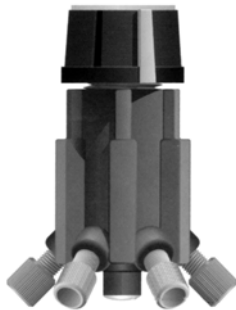
Medium Pressure Switching Valves, for 1/16" Tubing

			P/N	Description	€ea.
			052V-100D	4-Way Diagonal Flow Switching Valve incl. 4 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	134.15
			052V-100L	2-Way Right Angle Flow Switching Valve incl. 2 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	134.15
			052V-100T	3-Way Flow Switching Valve incl. 3 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	134.15
SWITCHING VALVE OPTIONS					
 <p>4-Way Diagonal Flow Switching Valves (V-100D, V-101D, V-1101D-DC)</p> <p>Right Angle Flow Switching Valves (V-100L, V-101L, V-1101L-DC)</p> <p>3-Way Flow Switching Valves (V-100T, V-101T, V-1101T-DC)</p>					
			052V-101D	Bulkhead Version of 052V-100D incl. 4 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	142.45
			052V-101L	Bulkhead Version of 052V-100L incl. 2 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	141.90
			052V-101T	Bulkhead Version of 052V-100T incl. 3 pcs. Ferrules 052P-240 + Nuts 052P-218BLK	141.90
			P/N	Description	€ea.
 <p>052P-218 BLK</p>	 <p>052P-240</p>	 <p>052P-235</p>	052P-218BLK	1/16" ETFE Short Flangeless Nut, black	4.60
					052P-218BLK-25
 <p>052P-200</p>	 <p>052P-340</p>	 <p>052P-335</p>	052P-240	1/16" Small Valve ETFE Ferrule, natural	1.65
					052P-235
			052P-200	1/16" ETFE Flangeless Ferrule, blew	1.65
			052P-340	1/8" Small Valve ETFE Ferrule, natural	1.65
			052P-335	1/8" PEEK Short Flangeless Nut, natural	3.85


Medium Pressure Shut-Off Valves, for 1/8" Tubing, up to 34 bar



			P/N	Description	€ea.
			052P-783	ETFE Shut-Off Valve, with PCTFE Rotor incl. 2 Ferrules 052P-300 + Nuts 052P-335	53.30
			052P-733	PEEK Shut-Off Valve, with PCTFE Rotor incl. 2 Ferrules 052P-300 + Nuts 052P-335	58.90

Medium Pressure Injection Valves

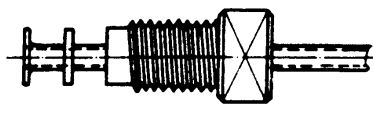
			P/N	Description	€ea.
	052V-540	052V-450	Medium Pressure Injection Valve for 1/16" tubing incl. 6 PEEK Nuts (052P-235) with thread 1/4"-28 UNF and 6 ETFE Ferrules (052P-200)	340.50	
		052V-451	Bulkhead Version of 052V-450 (switch panel mounting)	289.50	
		052V-540	Medium Pressure Injection Valve for 1/8" tubing incl. 6 PEEK Nuts (052P-335) with thread 1/4"-28 UNF and 6 ETFE Ferrules (052P-340)	277.85	
		052V-541	Bulkhead Version of 052V-540 (switch panel mounting)	326.40	

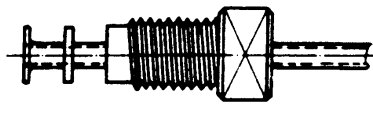
Medium Pressure Selection Valves

			P/N	Description	€ea.
	052V-240	052V-240	Medium Pressure 6-Way Selection Valve for 1/16" Tubing incl. 6 PEEK Nuts (052P-235) with thread 1/4"-28 UNF and 6 ETFE Ferrules (052P-200)	340.50	
		052V-241	Bulkhead Version of 052V-240 (switch panel mounting)	354.75	
		052V-340	Medium Pressure 6-Way Selection Valve for 1/8" Tubing incl. 6 PEEK Nuts (052P-335) with thread 1/4"-28 UNF and 6 ETFE Ferrules (052P-340)	340.50	
		052V-341	Bulkhead Version of 052V-340 (switch panel mounting)	289.15	

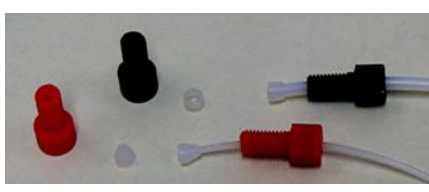
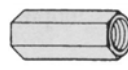

PTFE Unions, Tees, Crosses, 2-, 3-, 4-Way Valves with inner thread ¼" 28UNF (without fittings)			
	P/N	Description	€/ea.
	589100	Union, through-going	8.60
	589102	Tee, bore 0.8 mm	32.20
	589103	Cross, bore 0.8 mm	42.70
	589104	2-Way Valve, bore 0.8 mm	46.10
	589105	3-Way Valve L-Bore, bore 0.8 mm	63.90
	589106	3-Way Valve T-Bore, bore 0.8 mm	54.20

PEEK Unions, Tees, Crosses with inner thread ¼" 28UNF see page 49

Flange Fittings from Plastic for above Unions , with thread ¼" 28UNF			
Fittings with Washer (see figure)			
	400551	Fitting PP for 1/16" Tubing	pk/10 20.10
	400552	Fitting PP for 1/8" Tubing	pk/10 20.10
	400556	Fitting PTFE for 1/16" Tubing	ea. 7.20
	400557	Fitting PTFE for 1/8" Tubing	ea. 7.20
	400682	Washer PP for 1/16" Tubing	pk/10 7.20
	400683	Washer PP for 1/8" Tubing	pk/10 7.20


Flange Stainless Steel Fittings for above Unions , with thread ¼" 28UNF			
Fittings with SS-Washer, Fittings and Washer are be separately ordered (see picture)			
	400685	Fitting SS for 1/16" Tubing	ea. 8.50
	400686	Fitting SS for 1/8" Tubing	ea. 14.50
	400680	Washer SS for 1/16" Tubing	pk/10 16.30
	400681	Washer SS for 1/8" Tubing	pk/10 16.30

Thermo Flange System see page 57

Flangeless Plastic Fittings for above Unions , with thread ¼" 28UNF			
Fittings with Ferrules, Fittings and Ferrules are be separately ordered (see figure)			
	590550	Fitting Nut Delrin for 1/16" Tubing	pk/10 12.90
	590551	Fitting Nut Delrin for 1/8" Tubing	pk/10 12.90
	590556	Fitting Nut PEEK for 1/16" Tubing	ea. 9.80
	590557	Fitting Nut PEEK für 1/8" Tubing	ea. 9.80
	590552	Tefzel Ferrule for 1/16" Tubing	pk/10 21.30
	590553	Tefzel Ferrule for 1/8" Tubing	pk/10 21.30
	400553	Union for Fitting Nut Delrin	pk/10 29.70
	590261	PEEK Plug	ea. 7.20
	052P-316	PTFE Plug	ea. 2.55
590261	052P-316		

PEEK Adapter





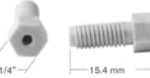
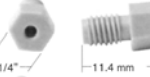



Thread 1/16" (=10/32 UNF), M6, 1/4" 28UNF, Luer Lock, Luer Tip

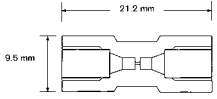

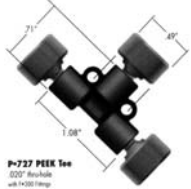


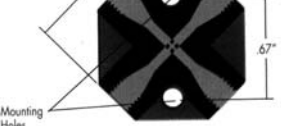
	P/N	Description	€ea.
	052P-652	PEEK-Adapter 1/4" 28G-Female to UNF 10/32-Male	18.10
	052P-650	PEEK-Adapter M6-Female to UNF 10/32-Male (Pharmacia)	18.20
	052P-669-01	PEEK-Adapter UNF 10/32-Female to 1/4" 28G-Male	27.35
	052P-670	KEL-F-Adapter M6-Female to 1/4" 28G-Male	27.55
	052P-920-01	PEEK-Adapter UNF 10/32-Female to M6-Male	27.55
	052P-659	PEEK-Adapter Female Luer Tip to UNF 10/32-Female	15.85
	052P-656	PEEK-Adapter Male Luer Tip to UNF 10/32-Female	16.90
	052P-658	PEEK-Adapter Female Luer Tip to 1/4" 28G-Female	15.85
	052P-655	PEEK-Adapter Male Luer Tip to 1/4" 28G-Female	16.90
	052P-660	PEEK-Adapter Female Luer Tip to M6-Female	15.85
	052P-657	PEEK-Adapter Male Luer Tip to M6-Female	17.00
	052P-627	PEEK-Adapter UNF 10/32-Female to Gewinde 1/4" 28G-Female	31.85
	052P-626	PEEK-Adapter UNF 10/32-Female to M6-Female (Pharmacia)	31.85
	052P-693	Long Body Adapter, PTFE (male length 17 mm) 1/4" 28UNF female to 1/4" 28UNF male	33.55
	052P-645	PCTFE-Extension-Adapter (thread length 31.5 mm) 1/4" 28G-Male to 1/4" 28G-Male	15.55
	590253	PEEK One-Piece Coupler with 2x UNF 10/32-male for 2 columns with thread 10/32UNF female	27.85
 <p>U=466 and U=466S Static Mixing Tees with F=300 Fittings for 1/16" OD tubing</p>	052U-466	Static Mixing Tee with UHMWPE Frit 10 µm Ideal for mixing microbore and analytical gradient HPLC. Swept volume 2.2 µl, Flow 0.5 – 3 ml/min, max pressure 6000 psi (414 bar), bore 0.5 mm, complete with 3 F-300 PEEK Fittings	137.35
	052U-466S	Static Mixing Tee with SS Frit 10 µm Ideal for mixing microbore and analytical gradient HPLC. Swept volume 2.2 µl, Flow 0.5 – 3 ml/min, max pressure 6000 psi (414 bar), bore 0.5 mm, complete with 3 F-300 PEEK Fittings	137.35



PEEK Fittings



for Tubing with 1/16" OD, Thread 10/32 UNF, 4.7 mm OD

	P/N	Description	€ea. 1-9 pc. -01	€ea. +10 pc. -10
	Appendix*	→		
	590505	PEEK – SL-Fingertight Fitting Head flattened as spanner flat	6.60	5.95
	590561	PEEK – SL- Fingertight Fitting (round type)	8.20	7.40
	590591	PEEK SL- Fingertight Fitting (extra long)	8.20	7.40
	590592	PEEK – SL- Fingertight Fitting (small head)	9.25	8.30
	590521	PEEK – Hexagon Fitting (long type – Double Ferrule required)	6.90	6.20
	590593	PEEK – Hexagon Fitting (short type – Double Ferrule required)	6.90	6.20
	590594	PEEK – Fingertight Fitting (Double Ferrule required)	6.90	6.20
	590523	PEEK – Double Ferrule	3.50	3.15
	590595	PEEK – Hexagon Fitting (One-Piece: Ferrule included)	6.55	5.90

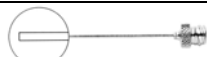
			€ea.
	590750	PEEK Union; without Fittings 0.25 mm Bore	9.20
	590562	PEEK Union; with 2 PEEK SL- Fingertight Fittings 0.25 mm Bore	22.35
	052P-727-01	PEEK Tee; without Fittings 0.5 mm Bore	22.10
	052P-727	PEEK Tee with 3 PEEK SL- Fingertight Fittings 0.5 mm Bore	43.35
	052P-729-01	PEEK Cross without Fittings 0.5 mm Bore	40.80
	052P-729-01-05	PEEK Cross without Fittings 0.5 mm Bore	31.40
	052P-729	PEEK Cross; with 4 PEEK SL- Fingertight Fittings 0.5 mm Bore	59.10

* Appendix → see page 93

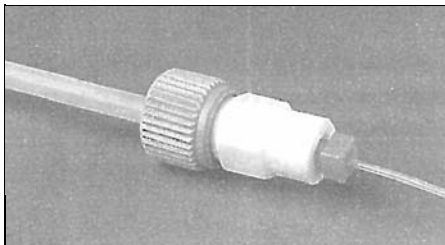
ETFE Adapter

	P/N	Description	€ea.
	590578	ETFE Adapter Female Luer Lock to 1/4"28UNF male	11.60
	590579	ETFE Adapter Male Luer Tip to 1/4"28UNF male	11.60

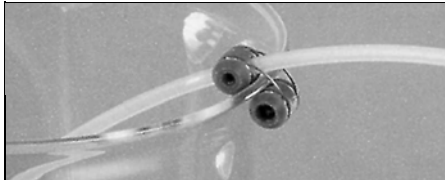
Luer Lock Port with 1/16" Tubing

	590596	Luer Lock Port with 1/16" Tubing incl. Nut and Ferrule	19.10
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PTFE Tubing Connector

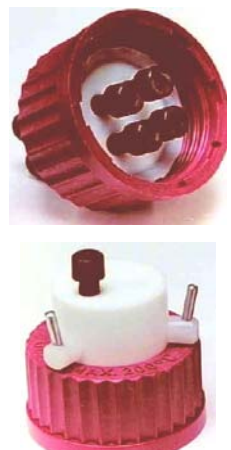

	P/N	Description	€ea.
			from Tubing 1/16" or 1/8" OD to Tubing (Glass, Plastic or Metal) with 4, 6, 8 or 10 mm OD
	58912401	1/16" → 4 and 6 mm	46.40
	58912501	1/16" → 8 and 10 mm	59.60
	58912601	1/8" → 4 and 6 mm	46.40
	58912701	1/8" → 8 and 10 mm	59.60

Tubing Clips

	P/N	Description	€ea. 1-9 pcs. -01	€ea. + 10 pcs. -10
	Appendix*	→		
	590251	Tubing Clips for Tubing 1/16" and 1/8" OD	3.30	3.00

Opti Cap GL 45

Polypropylene Screw Cap, Teflon (PTFE) Insert

	Opti Cap GL 45 for Tubing 1/16" and 1/8" OD, complete with Fittings, Thread 1/4"28UNF on both sides of the insert					
	P/N	Bore Diameter/Tubing OD			€ea.	
	589120	2 Port for 1/16"			57.70	
	589121	2 Port for 1/8"			54.90	
	589122	4 Port for 1/16"			69.30	
	589123	4 Port for 1/8"			68.90	
	589124	2 Port for 1/16" with Valve			137.30	
	589125	2 Port for 1/8" with Valve			91.00	
	589126	3 Port for 1/16" with Valve			145.50	
	589127	3 Port for 1/8" with Valve			145.50	
	590250-N	Eco Cap GL 45 Polypropylene Screw Cap, ETFE Insert with 2 Ports 1/8" and 1 Port Luer for inserting the tubing. with a Polypropylene Plug, Male Luer			33.25	
	590262	Polypropylene Plug, Male Luer			2.90	
	HPLC Glass Bottles GL 45 incl. regular caps					
Volume	Clear P/N	€ea.	Safety coated P/N	€ea.	Amber P/N	€ea.
500 ml	590273	7.20	590293	20.30	590283	40.50
1000 ml	590274	9.90	590294	29.20	590284	51.90
2000 ml	590275	22.90	590295	56.00	590285	80.50

* Appendix → see page 93

Solvent Filter


	P/N	Filter-Ø	Type	Fitting	Pore-Ø	€ea.
	590061	17.2 mm; Stainless steel	A	1/8"		33.10
	052A-302	12.5 mm; Stainless steel Length 28,5 mm	A	1/16"	10µm	23.45
	590084	9.5 mm*; Filter, Stainless steel	B	1/8"	2µm	21.05
	590085	9.5 mm*; Filter, Stainless steel	B	1/8"	10µm	21.05
	590086	9.5 mm*; Filter, Stainless steel	C	1/16"	2µm	21.05
	590087	9.5 mm*; Filter, Stainless steel	C	1/16"	10µm	21.05
		* Fitting: PEEK				
	590064	10 mm; PEEK/PTFE*		1/8"	5µm	50.10
	590064-20	10 mm; PEEK/PE*		1/8"	20µm	22.10
	590065	10 mm; PEEK/PTFE*		1/16"	5µm	50.10
	590065-20	10 mm; PEEK/PE*		1/16"	20µm	22.10
	590066	10 mm; PTFE Replacement Filter			5µm	35.05
	590066-20	10 mm; PE Replacement Filter			20µm	3.20
		* Fitting from PEEK Filter from PE or PTFE				
	590067	20 x 7 mm Poroplast(PE)-Suction Filter		pk/10	4µm	20.40
	590068	1/8" Tubing may be inserted directly		pk/10	10µm	20.40
	590069	1/8" Tubing may be inserted directly		pk/10	35µm	20.40


Inline Filters Thread UNF 10/32 for 1/16" Tubing

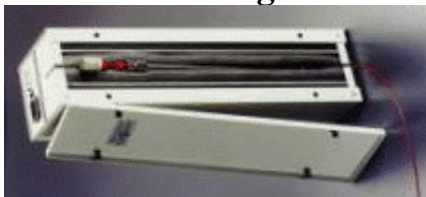
PEEK for low and medium Pressure up to 345 bar, Stainless Steel for high Pressure up to 620 bar

	P/N	Filter	Dead-volumne	Pore-Ø	€ea.	
	052A-410	Biocompatible Semi Präp.precolumn filter incl. 2 µm PEEK Frit, PCTFE-Ring, green	89µl	2µm	131.65	
	052A-411	Biocompatible Semi Präp.precolumn filter incl. 10 µm PEEK Frit, PCTFE-Ring, natur	103µl	10µm	131.65	
	052OC-802	2µm PEEK Replacement-Frit, PCTFE-Ring green	89µl	2µm	20.70	
	052OC-803	10µm PEEK Replacement-Frit, PCTFE-Ring, natur	103µl	10µm	20.70	
	052A-355	PEEK Precolumn Filter with 2 µm PEEK Polymer Frit	1.4µl	2µm	74.30	
	052A-356	PEEK Precolumn Filter with 0.5 µm PEEK Polymer Frit	1.3µl	0.5µm	74.30	
	052A-700	PEEK Polymer Replacement Frit	0.74µl	2µm	10.55	
	052A-701	PEEK Polymer Replacement Frit	0.61µl	0.5µm	10.55	
	052A-313	InLine Solvent Filter , stainless steel incl. 20µm stainless steel frit	12.3µl	20µm	71.65	
	052A-314	InLine Solvent Filter , Stainless steel incl. 2µm stainless steel frit	4.0µl	2µm	71.65	
	052A-224	Replacement Frit Stainless steel	9.7µl	20µm	5.30	
	052A-100	Replacement Stainless steel	1.4µl	2µm	4.50	
	052A-315	Ultra-Low Volume Precolumn Filter with 2 µm SS Frit	1.4µl	2µm	71.65	
	052A-318	Ultra-Low Volume Precolumn Filter with 0.5 µm SS Frit	0.84µl	0.5µm	92.15	
	052A-101	Replacement Frit Stainless steel	0.74µl	2µm	4.50	
	052A-102	Replacement Frit Stainless steel	0.61µl	0.5µm	4.50	
	590258-N	SS InLine Filter, small type			2µm	92,40
	590259-N	Replacement Frit with PEEK-Ring	pk/5		2µm	41.70

Column Heater and Pressure-/Flow measurement for HPLC

GECKO-2000 Column Heater 		Manual temperature control from 30°C to 80°C. Suitable for a column and a guard column. Computer programmable temperature via RS 232 (optional). Validation by user: CIL concept (inclusive), that means Calibration Intelligence Linearisation = CIL ; the software for a fast self validation is included ! weight: 3.24 kg dimensions: 40 x 8 x 10.5 cm
P/N	Description	€ea.
493600	Column Heater GECKO-2000	1147.00


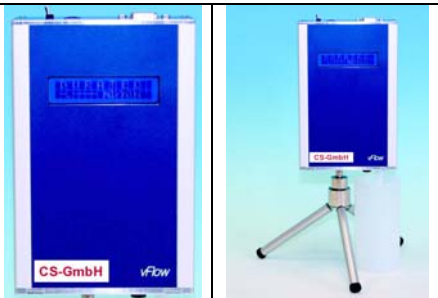
CROCO-CIL- Column Heater 		Temperature range from 30°C to 99°C. Suitable for all analytical HPLC columns incl. guard column temperature rise: 5°C/min programmable via RS 232 (optional) CIL-system (see GECKO-2000) weight: 5 kg dimensions: 40 x 24 x 8 cm
P/N	Description	€ea.
493603	Column Heater 040TW up to 3 columns/heater	3255.00

560-CIL Heating and Cooling Unit 		Temperature range from 5°C to 60°C. by Peltier Effect for all analytical HPLC columns guard column capable CIL-System (see GECKO-2000) weight: 4 kg dimensions: 40 x 10 x 10 cm
P/N	Description	€ea.
493604	Column Heater 560-CIL	2546.00


493605	Software for the temperature programming of all CIL column heaters (includes CD-ROM, RS 232-cable and manual)	212.00
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Special data sheet on request

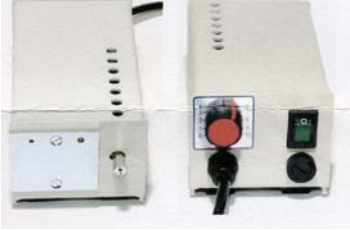

Pressure-/Flow measurement for HPLC

	P/N	Short Description	€ea.
	014930015	Pressure measurement for HPLC For measurement of the actual pressure of flow directions. 6 different pressure ranges up to 400 bar optional. Tee fitting for 1/16" capillary and power pack 12/220 Volt inclusive. Product information on our website: www.cs-chromatography.com	1050.00
	014792615	Flow measurement for HPLC For measurement of the actual flow rate in LC. May be calibrated. With RS-232-port. Delivered in a bag, complet with tripod, waste can, power supply and certificate. Measuring range: 0.05 to 10 ml/min Product information on our website: www.cs-chromatography.com	1870.00

Easy-Flange-Kit


	P/N	Description	€ea.
	590201540	<p>The Easy-Flange flange rolling tool has been developed for flanging all Teflon tubes with OD between 1/16" and 1/8" for fittings requiring an flange. The tool forms the flange just by applying a mechanical force and does not require electrical power. The quality of the flange is considerably improved since the flanges are formed without stressing the tubing by heat and because the specially designed negative conical profile of flange forming part gives a shape ideal for maximum sealing properties.</p> <p>Kit complete with the following parts: Flanging disc with 0.5 mm SS pin for PEEK tubing Flanging disc with 0.8 mm Polymer pin Flanging disc with 0.8 mm Titanium pin Flanging disc with 1.3 mm Polymer pin Flanging disc with 1.3 mm Titanium pin Clean-Cut tubing cutter 2 m PTFE tubing 1/16" x 0.75 mm ID</p>	225.15
	590202235	Flanging disc with 0.5 mm SS pin for PEEK tubing	30.90
	590201541	Flanging disc with 0.5 mm SS pin for PEEK tubing	18.55
	590201554	Flanging disc with 0.8 mm Polymer pin	29.15
	590201662	Flanging disc with 0.8 mm Titanium pin	19.40
	590201536	Flanging disc with 1.3 mm Polymer pin	18.55
	590201537	Flanging disc with 1.3 mm Titanium pin	29.15
	590201663	Flanging disc with 1.5 mm Polymer pin	19.40

Thermo Flange System


	P/N	Description	for Tubing ID	€ea.
 <p>old new</p>	087110	Thermo Flange System New "adjustable" with Flanging Tip 0.75 mm incl. Tubing Holder and Cutter Current sink 230V/50Hz 30W	0.75 mm - 1.2 mm	294.00
		087111	Flanging Tip 0.5 mm	0.5 mm - 1.0 mm
087102		Flanging Tip 0.75 mm	0.75 mm - 1.2 mm	19.90
087103		Flanging Tip 1.5 mm	1.2 mm - 2.2 mm	19.90
087104		Flanging Tip 2.4 mm	2.2 mm - 3.0 mm	19.90

Flange Fittings from Plastic and Steel see Page 51

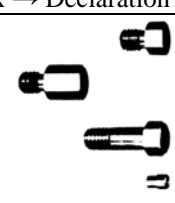

Backpressure-Regulators

	Art.-Nr.	Bezeichnung:	€/St.
	590BPR1	Backpressure-Regulator, variable between 1 - 20 bar Housing: PEEK, Membrane: polyimide - Improves baseline stability by preventing bubble formation in flow cell - Adjustable backpressure without disbonnecting - Low dead volume (0,25 µm) - Biocompatible - Easy mounting, panel hole 17 mm	121.95
	590BPR2	Backpressure-Regulator, variable between 20 - 103 bar	121.95

Rheodyne Valves for HPLC

	P/N	Description	Rheodyne-Part No.	€ea.
	400103	2 Pos. 6-Way Selection Valve 7000	7000	701.95
	400135	Injection Valve 7010 incl. 20 µl Loop	7010	786.20
	400104	2 Pos. 2x3-Way Selection Valve 7030	7030	727.20
	400106	6 Pos. Selection Valve 7060	7060	817.70
	400001	Injection Valve 7125 incl. 20 µl Loop	7125	1347.75
	400109	Injection Valve 7725i incl. 20 µl Loop with Position Sensing Switch	7725i	1155.65
	400107	Micro Valve 8125 incl. 5 µl Loop with Position Sensing Switch	8125	1546.40
	400136	Injection Valve 9010 metal free incl. 20 µl PEEK Loop	9010	1062.45
	400108	Injection Valve 9725i metal free incl. 20 µl PEEK Loop and Position Sensing Switch	9725i	1155.65
	400200	Injection Valve 1 7725i-188 incl. 20µl Loop with Position Sensing Switch Pressure max. 600 bar	7725i-188	1248.15

Replacement Parts	P/N	Description	€ea.	€ea.
	400070	Mounting Bracket	7160	26.60
	400071	Valve Angle Bracket	7160-010	35.70

	P/N	Description	€ea.	€ea.
* Appendix → Declaration see Page 78	Appendix*	→	1-9 pc.	+10 pc.
			-01	-10
	400020	Fitting Nut, short (7010-009)	3.75	3.60
	400023	Fitting Nut, long (7010-011)	4.60	4.15
	400026	Fitting Nut, extra long (7010-062)	6.50	-
	400030	Rheodyne Ferrule 1/16" (7010-010)	3.25	3.05
	400040	Rheotool , the special tool for 1/16" Fitting Nut	35.35	-

MarvelX UHPLC-Fittings:

Fittings are small enough to fit in tight places and allow for finger-tightening at UHPLC pressures.



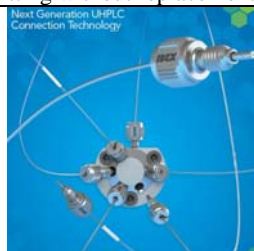
The MarvelX UHPLC-Fittings depend not on ferrules. They seal at the bottom of the port. Impossible to over-tighten by hand, reducing required torque and wear, increasing life time. Zero dead volume and better chromatographic results



The tubing is replaceable independent of fitting; the robust tip is reusable. Removable fitting without replacement of the capillary.

Zero Dead Volume

Stainless steel fitting and precision-cut flexible tubing assembly

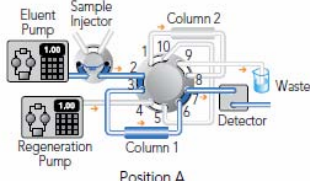


ID	Length	P/N	€Kit	Length	P/N	€Kit
100 µm	150 mm	052UPFS-6100150	160.40	350 mm	052UPFS-6100350	160.40
125 µm	150 mm	052UPFS-6125150	134.20	350 mm	052UPFS-6125350	134.20
254 µm	150 mm	052UPFS-6254150	127.35	350 mm	052UPFS-6254350	127.35

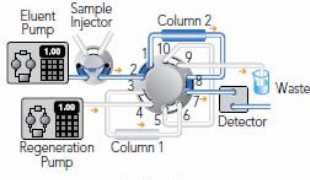
Replacement tubing:

ID	Length	P/N	€ea.	Length	P/N	€ea.
100 µm	150 mm	052UPFS-6100150T	142.05	350 mm	052UPFS-6100350T	146.90
125 µm	150 mm	052UPFS-6125150T	121.20	350 mm	052UPFS-6125350T	127.35
254 µm	150 mm	052UPFS-6254150T	115.15	350 mm	052UPFS-6254350T	120.00

MX Serie II - Valves for HPLC




Position A




Position B

MXT-Valve



CE

MXP-Valve



CE

Alternating column regeneration using Rheodyne® Two-Position, Ten-Port MXP Module (P/N MXP7960-000, page 127)

MX Serie II™ Valves can be controlled electronically and easily connected to existing instrumentation with contact closure, BCD, I2C, USB or used as a stand-alone devices. The standard injection valves and switching valves are also suitable for manual operation. Search from the valve module with flow configuration choice using the following tables.

Valves of Serie MXT (pressure stable until to 1035 bar)

P/N	Description	Port	Material	Rheodyne-Mat.-No.	€ea.
MXT	Switching Valve	10/32-1/16"			
400MXT715-000	Switching 2-Pos.-6 Port-Valve	10/32-1/16"	UltraLife	MXT715-000	1949.05
400MXT715-102	Switching 2-Pos.-10 Port-Valve	10/32-1/16"	UltraLife	MXT715-102	2825.95
400MXT715-105	Selection Valve Selection 6-Pos.-7 Port-Valve	10/32-1/16"	UltraLife	MXT715-105	2103.50
	Injection Valve Add the appropriately sized Sample Loop to the Switching Valves			See page 57	

Ventile der Serie MXP (pressure stabile until to 410 bar, Nano- and Biocompatible-MXP-Valve until to 345 bar)

MXP	Switching Valve				
400MXP7900-000	Switching 2-Pos.-6 Port-Valve	10/32-1/16"	DuraLife	MXP7900-000	1605.55
400MXP7960-000	Switching 2-Pos.-10 Port-Valve	10/32-1/16"	DuraLife	MXP7960-000	2037.40
400MXP7980-000	Switching 2-Pos.-6 Port-Nano-Valve	M4-1/32"	DuraLifeII	MXP7980-000	2752.70
400MXP7986-000	Switching 2-Pos.-10 Port-Nano-Valve	M4-1/32"	DuraLifeII	MXP7986-000	3317.25
400MXP9900-000	Switching 2-Pos.-6 Port-Biocompatible-Valve	10/32-1/16"	DuraLife	MXP9900-000	1502.65
400MXP9960-000	Switching 2-Pos.-10 Port-Biocompatible-Valve	10/32-1/16"	DuraLife	MXP9960-000	2037.40
400MXP7970-000	Selection Valve Selection 6-Pos.-7 Port-Valve	10/32-1/16"	DuraLifeII	MXP7970-000	1967.40
400MXP7920-000	Switching Valve (add the appropriately sized Sample Loop) Injektionsventil 2-Pos.-6 Vertikal-Port-	10/32-1/16"	DuraLife	MXP7920-000	2782.90

Ventile der Serie MXX (pressure stabile until to 8,5 bar)

MXX	Switching Valve				
400MXX777-601	Switching 2-Pos.-6 Port-Valve	10/32-1/8"	RPC-7	MXX777-601	1472.55
400MXX777-603	Switching 2-Pos.. Double Three Way-Valve	10/32-1/8"	RPC-7	MXX777-603	1444.50
400MXX777-612	Switching 2-Pos.-6 Port- Large Bore-Valve	10/32-1/8"	RPC-7	MXX777-612	1516.75
	Selection Valve				
400MXX777-605	Selection 6-Pos.-7 Port-Valve	10/32-1/8"	RPC-7	MXX777-605	1516.75
400MXX777-616	Selection 6-Pos.-7 Port-Large Bore-Valve	10/32-1/8"	RPC-7	MXX777-616	1516.75
400MXX778-605	Selection 10-Pos.-11 Port-Valve	10/32-1/8"	RPC-7	MXX778-605	1640.90

The coming into contact with liquid material:

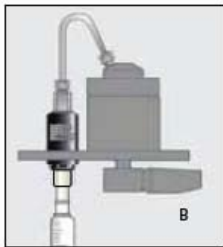

UltraLife – Stainless Steel-UltraLife

DuraLife: Stainless Steel-Advanced Polymer

DuraLifeII: Titanium- Advanced Polymer

RPC-7: Proprietary Polymer Combination

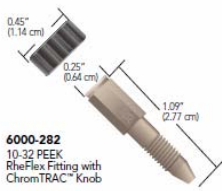
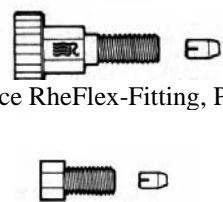
Accessories for Rheodyne-Valves

Needle Port Accessories	 <p>Figure 2 (A) Syringe fitted with Needle Port Cleaner (Part # 7125-054) loading a front-loading valve (model 7725) (B) loading a Loop Filler Port (Part # 7012)</p>	 <p>From top to bottom: 9125-076, 9012, 7012, 9013</p>
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P/N	Description	Rheodyne-Part No.	€ea.
4009125-076	Needle-Adapter for 9125/9126	9125-076	61.40
400235	PEEK Loop Filler Port	9012	192.80
400355	Stainless Steel Loop Filler Port	7012	197.70
4009013	PEEK Needle Port	9013	39.00

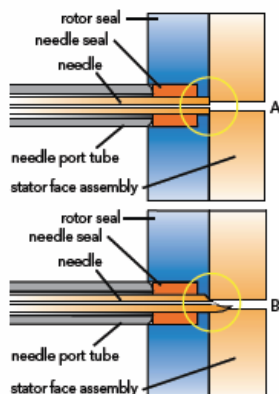
Valve-Adapter 10/32 UNF to 1/32" OD-Tubing	 <p style="text-align: center;">M-400</p>	 <p>M-400 Valve Adapter (Includes indicated products)</p>
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P/N	Description	Rheodyne-Part No.	€ea.
052M-400	Valve-Adapter	M-400	109.00
052F-112	Micro PEEK Ferrule, naturale, for 1/32" OD-Tubing	F-112	9.40
052P-416	Female PEEK Nut, naturale, 5/16-24 Female Thread	P-416	8.35

RheFlex-Fitting 10/32 UNF-Thread	 <p>6000-282 10-32 PEEK RheFlex Fitting with ChromTRAC™ Knob</p> <p style="text-align: center;">One piece RheFlex-Fitting</p>	 <p style="text-align: center;">Two piece RheFlex-Fitting, PEEK, long</p> <p style="text-align: center;">Two piece RheFlex-Fitting, PEEK, short</p>
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P/N	Description	Rheodyne-Part No.	€ea.
4006000-282	One piece RheFlex-Fitting, black	pk/10 6000-282	50.20
4006000-051	RheFlex-Ferrule, PEEK	pk/5 6000-051	23.00
400213	Two piece RheFlex-Fitting (5 Fittings + 5 Ferrules), PEEK, long	pk/5 6000-054	32.30
400214	Two piece RheFlex-Fitting (5 Fittings + 5 Ferrules), PEEK, short	pk/5 6000-055	30.85


All above mentioned RheFlex-Fittings are available in blue, green, yellow, red and white.

<p style="color: red; text-align: center;">Using Proper Syringe Needles</p>  <p>Figure 1 A square cut needle: (A) stops against the stator face assembly. The tip of a pointed needle (B) slips into the stator face and the tip breaks off as the valve rotates</p>	<p style="text-align: center;">Attention please!!</p> <p style="text-align: center;">Please use only syringes with blunt needle (Pst 3), to avoid Rotor-Seal damages (see picture beside).</p> <p style="text-align: center;">For HPLC-Syringes see on page 77.</p>
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Accessories for Rheodyne Valves

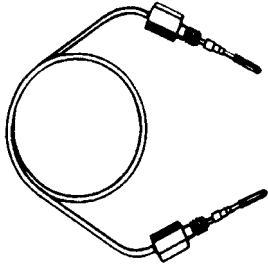
Stainless Steel Loops – Original Rheodyne for MXT-Valves

incl. 2 pc. SS-Fitting Nuts, long and 2 pc. Rheodyne Ferrules

	P/N	Description	Rheodyne Part No.	€ea.
	4007755-300	5 µl Loop	7755-300	145.30

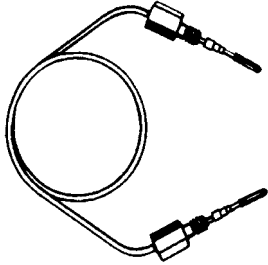
Stainless Steel Loops – Original Rheodyne for 7010 or 7125-Valves (not for 7725)

incl. 2 pc. SS-Fitting Nuts, long and 2 pc. Rheodyne Ferrules

	P/N	Description	Rheodyne Part No.	€ea.
	400005	5 µl Loop	7020	54.75
	400006	10 µl Loop	7021	52.80
	400007	20 µl Loop	7022	47.55
	400008	50 µl Loop	7023	54.60
	400009	100 µl Loop	7024	53.45
	400010	200 µl Loop	7025	56.40
	400011	500 µl Loop	7026	63.60
	400012	1 ml Loop	7027	72.85
	400013	2 ml Loop	7028	107.30
	400014	5 ml Loop	7029	184.60

Stainless Steel Loops – Original Rheodyne for 7725, 7725i(-188) or MX-Valves (not for 7125)

incl. 2 pc. SS-Fitting Nuts, long and 2 pc. Rheodyne Ferrules

	P/N	Description	Rheodyne Part No.	€ea.
	400216	5 µl Loop	7755-020	54.75
	400217	10 µl Loop	7755-021	52.80
	400218	20 µl Loop	7755-022	47.55
	400219	50 µl Loop	7755-023	54.60
	400220	100 µl Loop	7755-024	53.45
	400221	200 µl Loop	7755-025	56.40
	400222	500 µl Loop	7755-026	63.60
	400223	1 ml Loop	7755-027	72.85
	400224	2 ml Loop	7755-028	107.30
	400225	5 ml Loop	7755-029	182.90


Stainless Steel Loops – Original Rheodyne for 8125-Valves

incl. 2 pc. SS-Fitting Nuts, long and 2 pc. Rheodyne Ferrules

	P/N	Description	Rheodyne Part No.	€ea.
	400242	5 µl Loop	8020	87.50
	400243	10 µl Loop	8021	87.50
	400244	20 µl Loop	8022	131.20
	400245	50 µl Loop	8023	182.60


Stainless Steel Loops – Type CS

incl. 2 pc. SS-Fitting Nuts, long and 2 pc. Rheodyne Ferrules

	P/N	Description	Rheodyne Part No.	€ea.	
	590605	5 µl Loop		48.90	
	590606	10 µl Loop		44.60	
	590607	20 µl Loop		44.60	
	590608	50 µl Loop		44.60	
	590609	100 µl Loop		44.60	
	590610	200 µl Loop		49.80	
	590611	500 µl Loop		55.80	
	590612	1 ml Loop		63.10	
	590613	2 ml Loop	1/8" OD with 1/16" Endfitting		69.30
	590614	5 ml Loop	1/8" OD with 1/16" Endfitting		80.90

PEEK Loops - Original Rheodyne for 9010 or 9725-Valves

incl. 2 pc. Rheflex Fittings


	P/N	Description	Rheodyne Part No.	€ea.
	400301	5 µl Loop (PEEK)	9055-020	38.80
	400302	10 µl Loop (PEEK)	9055-021	46.75
	400303	20 µl Loop (PEEK)	9055-022	42.50
	400304	50 µl Loop (PEEK)	9055-023	42.50
	400305	100 µl Loop (PEEK)	9055-024	46.65
	400306	200 µl Loop (PEEK)	9055-025	65.55
	400307	500 µl Loop (PEEK)	9055-026	68.55
	400308	1 ml Loop (PEEK)	9055-027	91.00
	400309	2 ml Loop (PEEK)	9055-028	126.50
	400310	5 ml Loop (PEEK)	9055-029	230.60
	400311	10 ml Loop (PEEK)	9055-033	410.50

PEEK Loop - Original Rheodyne for 7725, 7725i(-188) and 9725i-Valves (Internal groove)

	P/N	Description	Rheodyne Part No.	€ea.
	4007755-015	2 µl Loop	7755-015	142.35

PEEK Loops – Type CS

incl. 2 St. PEEK-Fittings and 2 pc. PEEK-Ferrules

	P/N	Description	€ea.
	400201	5 µl Loop (PEEK)	33.50
	400202	10 µl Loop (PEEK)	35.25
	400203	20 µl Loop (PEEK)	37.00
	400204	50 µl Loop (PEEK)	36.40
	400205	100 µl Loop (PEEK)	39.30
	400206	200 µl Loop (PEEK)	41.60
	400207	500 µl Loop (PEEK)	56.05
	400208	1 ml Loop (PEEK)	76.85
	400209	2 ml Loop (PEEK)	96.30
	400210	5 ml Loop (PEEK)	148.80

Rotor Seals for Rheodyne Valves

P/N	Valve type	Material	Rheodyne Part No.	€ea.
400034	Valve 7125, 7725i, 9125, 9725i	Vespel	7125-047	117.50
400074	Valve 8125	Vespel	8125-038	128.60
400056	Valve 7000, 7010, 7040, 9010	Vespel	7010-039	110.00
400059	Valve 7030, 9030	Tefzel	7030-015	124.45
400057	Valve 7000, 7010, 7040	Tefzel	7010-071	106.15
400061	Valve 7060, 9060	Tefzel	7060-074	109.15
400050	Valve 7125, 7725, 7725i	Tefzel	7125-079	114.00
400075	Valve 8125	Tefzel	8125-097	128.60
400345	Valve 9010	Tefzel	9010-051	106.15
400062	Valve 9125, 9725, 9725i	Tefzel	9125-082	114.00
400232	Valve 7000, 7010, 9010	PEEK	9010-065	125.60
400281	Valve 8125	PEEK	8125-119	140.95
400346	Valve 7125, 7725, 7725i, 9125, 9725i	PEEK	9125-095	125.60



Stators for Rheodyne-MX Serie II-Valves

P/N	Description	Rheodyne Part No.	€ea.
4007123-548	Stator for MXT715-000	7123-548	725.20
4007123-568	Stator for MXT715-102	7123-568	1519.00
4007770-229	Stator for MXP7920-000	7770-229	998.15
4007980-004	Stator for MXP7980-000	7980-004	1331.80
4007986-004	Stator for MXP7986-000	7986-004	1725.50
4007900-146	Stator for MXP9900-000	7900-146	364.00
4007900-179	Stator for MXP7900-000	7900-179	405.35
4007900-183	Stator for MXP7970-000	7900-183	1053.80
4007960-014	Stator for MXP7960-000	7960-014	745.90
4009960-002	Stator for MXP9960-000	9960-002	660.35

Stators for Rheodyne-Valves



P/N	Description	Rheodyne Part No.	€ea.
400052	Stator for Valve 7000, 7010, 7125, 7030 und 7040	7010-040	309.20
400068	Stator for Valve 7060	7060-039	379.80
400129	Stator for Valve 7725 und 7725i	7725-010	505.70
400241	Stator for Valve 8125	8125-098	655.85
400132	Stator for Valve 9010, 9030, 9125, 9725 und 9725i	9125-043	397.45

Service Kits for Rheodyne-Valves

All Kits include Allen Key and Guidance



Service Kits for Rheodyne-Valves

P/N	Description	Rheodyne Part No.	€ea.
4007788-999	RheBuild Kit 7725i-188 contains:	7788-999	225.20
	Rotor Seal	7125-209	
	Isolation Seal	7123-257	
	Stator Face Assembly	7725-026	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	

Service Kits for Rheodyne-MX Serie I-Valves

All Kits include Allen Key and Guidance

P/N	Description	Rheodyne Part No.	€ea.
4007900-999	RheBuild Kit for MX7900-000, MX7925-000, MX9900-000, MX9925-000	7900-999	258.70
4007960-999	RheBuild Kit for MX7960-000	7960-999	432.90
4007980-999	RheBuild Kit for MX7980-000	7980-999	249.25
4007986-999	RheBuild Kit for MX7986-000	7986-999	322.70

Service Kits for Rheodyne-MX Serie II-Valves

All Kits include Allen Key and Guidance

Art.-Nr.	Bezeichnung	Rheodyne Part No.	€ea.
4007150-999	RheBuild Kit for MXT715-000: (includes 2 Rotor Seal)	7150-999	571.55
4007152-999	RheBuild Kit for MXT715-102: (includes 2 Rotor Seal)	7152-999	588.35
4007155-999	RheBuild Kit for MXT715-105: (includes 2 Rotor Seal)	7155-999	600.10
4007920-999	RheBuild Kit for MXP7900-000 und MXP7920-000:	7920-999	215.50
4007960-999	RheBuild Kit for MXP9960-000: (includes Stator Face Seal)	7960-999	432.90
4007961-999	RheBuild Kit for MXP7960-000	7961-999	279.40
4007970-999	RheBuild Kit for MXP7970-000	7970-999	256.80
40079801-999	RheBuild Kit for MXP7980-000	79801-999	316.85
40079861-999	RheBuild Kit for MXP7986-000	79861-999	389.70
4007900-999	RheBuild Kit for MXP9900-000: (includes Stator Face Seal)	7900-999	258.60

Service Kits for Rheodyne-Valves

All Kits include Allen Key and Guidance

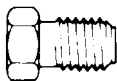


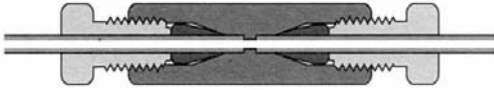
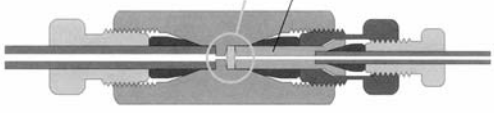
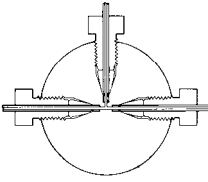
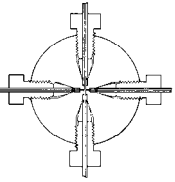
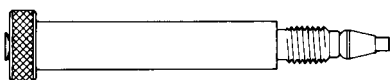


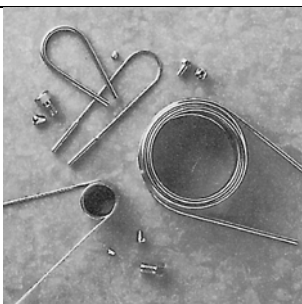
P/N	Description	Rheo.-No.	€ea.
400348	Spare parts for 7000/7010/7040:		
400056	Rotor Seal* Vespel	7010-039	110.00
400038	Isolation Seal*	7010-015	16.15
400037	Stator Face Assembly*	7125-067	220.40
400347	RheBuild Kit 7000/7010/7040 with Stator contains:	7010-997	307.00
	Rotor Seal Vespel	7010-039	
	Isolation Seal	7010-015	
	Stator	7010-040	
400341	RheBuild Kit 7000/7010/7040 contains:	7010-999	111.55
	Rotor Seal Vespel	7010-039	
	Isolation Seal	7010-015	
400335	RheBuild Kit 7125 contains:	7125-999	188.95
	Rotor Seal Vespel	7125-047	
	Isolation Seal	7010-015	
	Stator Face Assembly	7125-067	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	
400336	RheBuild Kit 7725i contains:	7725-999	179.980
	Rotor Seal Vespel	7125-047	
	Isolation Seal	7010-015	
	Stator Face Assembly	7725-026	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	
400339	RheBuild Kit 8125 contains:	8125-999	222.35
	Rotor Seal Vespel	8125-038	
	Isolation Seal	7010-015	
	Stator Face Assembly	8125-074	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	
400340	RheBuild Kit 9010 contains:	9010-999	179.85
	Rotor Seal Tefzel	9010-051	
	Isolation Seal	7010-015	
	Stator Face Assembly	8125-094	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	
400337	RheBuild Kit 9125 contains:	9125-999	179.85
	Rotor Seal Tefzel	9125-082	
	Isolation Seal	7010-015	
	Stator Face Assembly	8125-094	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	
400338	RheBuild Kit 9725i contains:	9725-999	179.85
	Rotor Seal Tefzel	9125-082	
	Isolation Seal	7010-015	
	Stator Face Assembly	7725-026	
	Needle Guide	7125-008	
	Needle Port Cleaner	7125-054	


Repair Service

We repair your Valves – and charge only the RheBuild Kit
The working time is our Service

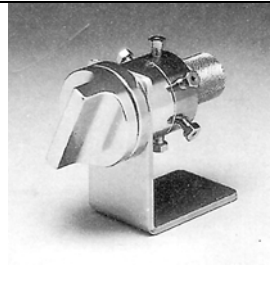
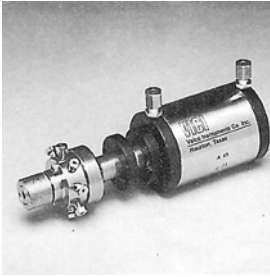
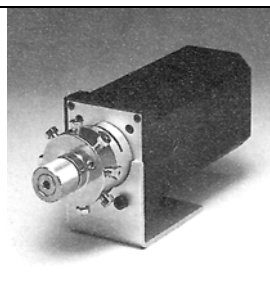
Valco/VICI Loops, Accessories and Unions

		P/N	Description	€ea.
		492218	SS Fitting Nut ZN.5, 1/32" pk/10	44.50
		492205	SS Fitting Nut ZN1, 1/16" pk/10	25.20
		492202	SS Fitting Nut ZN2, 1/8" pk/10	35.00
		492204	SS Ferrule ZF.5S6-10, 1/32" pk/10	44.50
		492206	SS Ferrule ZF1, 1/16" pk/10	29.40
		492203	SS Ferrule ZF2, 1/8" pk/10	28.00
		492213	Valco Ferrules Vespel+40% Graphite ZF.5GV, 1/32", Bore-Ø 1/32" pk/5	51.50
		492214	ZF1GV, 1/16", Bore-Ø 1/16" pk/5	33.90
		492215	ZF2GV, 1/8", Bore-Ø 1/8" pk/5	105.00
		492211	SS-Union ZU.5 1/32", Bore-Ø 0.25 mm	38.20
		492207	ZU1C 1/16", Bore-Ø 0.25 mm	32.30
		492212	ZU2 1/8", Bore-Ø 0.75 mm	22.40
		492208	SS Union with Frit ZUFR1CF Union 1/16" female with exchangeable Frit 2 µm, Bore 0.25 mm	61.60
ZT1C 	ZX1C 	492216	SS Tees ZT.5 1/32", Bore-Ø 0.25 mm	51.80
		492209	ZT1C 1/16", Bore-Ø 0.25 mm	47.60
		492217	ZT2 1/8", Bore-Ø 0.75 mm	35.30
		492210	SS Cross ZX1C Internal cross 1/16" Bore 0,25 mm	67.60
		492201	SS Fill-Port VISF-2 for Needles 51 mm x 0.72 mm OD for using Valco Valves as Injector Syringes for Rheodyne and Valco Valves see page 71	22.40

		P/N	Description	€ea.
			SS Loops for all UWT-type Valves incl. each 2 Fitting Nuts and Ferrules 1/8"	
		492320	Loop 10 µl	54.60
		492321	Loop 20 µl	54.60
		492322	Loop 50 µl	54.60
		492323	Loop 100 µl	42.40
		492324	Loop 250 µl	42.40
		492325	Loop 500 µl	46.20
		492326	Loop 1 ml	46.20




			SS Loops for all W-type Valves incl. each 2 Fitting Nuts and Ferrules 1/16"	
		492301	Loop 2 µl	35.00
		492302	Loop 5 µl	35.00
		492303	Loop 10 µl	35.00
		492304	Loop 15 µl	35.00
		492305	Loop 20 µl	35.00
		492306	Loop 25 µl	35.00
		492308	Loop 50 µl	35.00
		492309	Loop 100 µl	35.00
		492310	Loop 250 µl	42.40
		492311	Loop 500 µl	48.20
		492312	Loop 1 ml	54.60
		492313	Loop 2 ml	70.00
		492314	Loop 5 ml	81.20
		492315	Loop 10 ml	106.40

Valco/VICI Valves and Unions for GC

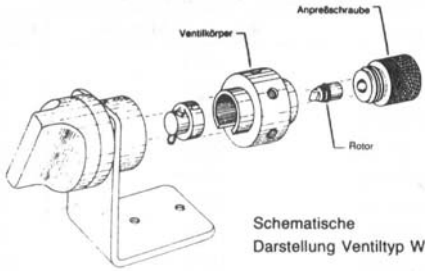
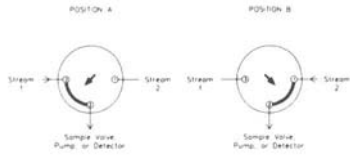
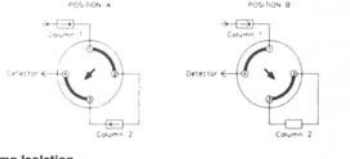
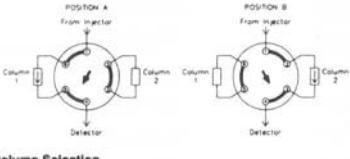
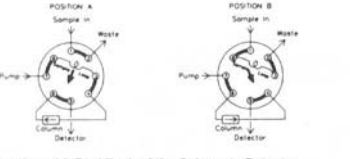
		P/N	Description	€/ea.
Manual Valve		492516 492517 492518	2 Position 4-Way-Injection Valve	987.00 1218.00 1939.00
			<ul style="list-style-type: none"> with internal Volume 0.5 µl Fittings 1/16", Bore 0.4 mm up to 70 bar/175°C for Capillary Columns with ID 0.53 mm 	
			Type *CI4WE.5 manual Valve Type A*CI4WE.5 air actuated Valve Type E*CI4WE.5 electric Valve (Micro Actuator, response time 250 ms)	
Air actuated Valve		492519 492520 492521	2 Position 6-Way Selection Valve	994.00 1225.00 1946.00
			<ul style="list-style-type: none"> works with Loops Fittings 1/16", Bore 0.4 mm up to 21 bar/350°C for Capillary Columns with ID 0.53 mm 	
			Type *C6WT manual Valve Type A*C6WT air actuated Valve Type EH*C6WT electric Valve (Micro Actuator, response time 100 ms)	
Electric Valve with Micro Actuator		492522 492523 492524	2 Position 6-Way Selection Valve	994.00 1225.00 2030.00
			<ul style="list-style-type: none"> works with Loops Fittings 1/8", Bore 0.75 mm up to 21 bar/300°C for packed GC Columns 	
			Type *6UWT manual Valve Type A*6UWT air actuated Valve Type E*6UWT electric Valve (Micro Actuator, response time 250 ms)	

* Stand-Off in inch (1"=25,4 mm), possible are: 2", 3", 4" and 6"

VICI-Valco – HPLC Cheminert Sample Injector

Valves type		P/N	Description	€/ea.	
Manual Valve		492C84X-1674-.02 492C84X-1674-.02EH	2 Position 6-Way Injection Valve	1386.00 2478.00	
			<ul style="list-style-type: none"> with internal Volume 20 nl Fittings 1/16", Bore 0.25 mm up to 1070 bar/max. 50°C Stainless Steel Stator with Valcon E3 Rotor 		
electric Valve with Micro Actuator		492C82X-1676 492C82X-1676EH	2 Position 6-Way Selection Valve	1386.00 2478.00	
			<ul style="list-style-type: none"> with 5 µl Loop Fittings 1/16", Bore 0.25 mm up to 1070 bar/max. 50°C Stainless Steel Stator with Valcon E3 Rotor 		
electric Valve with Micro Actuator		492C82X-1670 492C82X-1670EH	2 Position 10-Way Selection Valve	1540.00 2716.00	
			<ul style="list-style-type: none"> with 5 µl Loop Fittings 1/16", Bore 0.25 mm up to 1070 bar/max. 50°C Stainless Steel Stator with Valcon E3 Rotor 		
		492CSL2	Loop for C72X/C82X Valve	2µl	35.00
		492CSL5	Loop for C72X/C82X Valve	5µl	35.00
		492CSL10	Loop for C72X/C82X Valve	10µl	35.00
		492CSL20	Loop for C72X/C82X Valve	20µl	35.00

VICI-Valco Valves for HPLC

	P/N	Description	€ea.
<p>Applications: 2 Columns → 1 Detector 2 Columns → 1 Injector 2 mobile Phases → 1 Pump</p>  <p>Stream Selection Without Maintained Flow This arrangement allows the selection of two sample streams to one injector, two solvent streams to one pump, or two columns to one detector.</p>	<p>492501 492502 492EP*C3W</p> <p>492601</p>	<p>3-Way Valve</p> <p>Type *C3W, manual Valve Type A*C3W, air actuated Type EP*C3W, micro electric actuated</p> <p>Replacement Rotor SSA-C3W for all types above</p>	<p>847.00 1140.00 1869.00</p> <p>128.05</p>
<p>Applications: as above and continuous Flow on both Paths</p>  <p>Column Isolation A 4 port valve permits isolation of a column to prevent compounds emerging from an upstream column from being irreversibly retained.</p>	<p>492504 492505 492506</p> <p>492602</p>	<p>4-Way Valve</p> <p>Type *C4W, manual Valve Type A*C4W, air actuated Type EP*C4W, micro electric actuated</p> <p>Replacement Rotor SSA-C4W for all types above</p>	<p>847.00 1148.00 1869.00</p> <p>126.40</p>
<p>Applications: 2 Columns optional Column Back Flush Heart- or End-Cut of Samples</p>  <p>Two Column Selection When two different columns are required at frequent intervals, a 6 port valve can provide rapid selection of the one to be used.</p>	<p>492507 492508 492509</p> <p>492603</p>	<p>6-Way Valve</p> <p>Type *C6W, manual Valve Type A*C6W, air actuated Type EP*C6W, micro electric actuated</p> <p>Replacement Rotor SSA-C6W for all types above</p>	<p>924.0 1225.00 1946.00</p> <p>126.40</p>
<p>Applications: 2 Columns → 2 Detectors Injection with Back Flush</p>  <p>Loop Sampling with Backflush of the Column to Detector Sample injection into an HPLC column, followed by backflushing, is one of the simplest examples of HPLC column switching. As soon as the components of interest are detected, the strongly retained components are backflushed and removed from the column, without the use of gradient elution. The 8 port valve takes the place of both an injection valve and a 4 port backflush valve.</p>	<p>492510 492511 492512</p> <p>492604</p>	<p>8-Way Valve</p> <p>Type *C8W, manual Valve Type A*C8W, air actuated Type EP*C8W, micro electric actuated</p> <p>Replacement Rotor SSA-C8W for all types above</p>	<p>1001.00 1302.00 2023.00</p> <p>126.40</p>

* Stand-Off in inch (1"=25.4 mm), possible are: 2", 3", 4" and 6"

Tools & Accessories for Chromatography

	Art.-Nr.	Beschreibung	€ea.
	590002	Glass Wool fine Fiber, Silane treated pk/10 g	16.40
	590002-A	INNO-Sil® Glass Wool, fine Fiber, Special Silane treated pk/10 g	80.10
	198009	Glass Wool long Fiber, Silane treated pk/25 g	49.90
	198009-A	INNO-Sil® Glass Wool, long Fiber, Special Silane treated pk/10 g	80.10
	490202	Allen Wrench Set Set of 12 pc.: 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16", 3/8" Set	23.25
	198007	Leak Check SNOOP Bottle with 240 ml	21.40
	198008	Leak Check Spray Container with 400 ml	21.40
	490201	Wrench Set of 4 pc.: 1/4" x 5/16", 3/8" x 7/16", 7/16" x 1/2", 1/2" x 9/16" Set:	35.25
	490203	Wrench adjustable, 6" long opening adjustable up to 3/4" (19 mm)	22.70
	590205	PTFE Sealing Band Roll of 12 m, 12 x 0.1 mm	3.45
	400040	RHEOTOOL The Special Tool for 1/16" Fittings	35.35
	198005	Tubing Cutter, for SS Tubing 3-35 mm OD	41.90
	198006	Replacement Wheel, 20x5x5 mm (for both cutter)	6.15
	198005-K	Tubing Cutter, short Type, for SS Tubing 3-16 mm OD	20.95
	198006	Replacement Wheel, 20x5x5 mm (for both cutter)	6.15
	590202	Tubing Cutter for Plastic Tubing	10,60
	590203	Clean Cut for Plastic Tubing up to 1/8" OD without deformation of the tubing. Also for minimal internal ID like 0.1 mm	22.45
	590206	Capillary Tubing Cutter for SS-Capillary Tubing 1/16" OD	86.60
	590207	Replacement blade for Capillary Tubing Cutter	16.50
	590200	Special Cutting Gripper for Stainless Steel Capillaries with 1/16" OD	26.80

Syringes - HAMILTON

Syringe Terminations

Syringes and needles manufactured by Hamilton are intended for scientific research and laboratory use only and are **not** intended for human in vivo use.

Syringe terminations are offered in a number of different configurations designed to accommodate a broad range of applications. From cemented to removable needles and luer taper/TEFLON luer lock to special syringe fittings, syringe barrel terminations serve a key function at the interface of a syringe and its mating connection.

More information and other syringes you will find in the HAMILTON catalog „Syringes Catalog“ which we send on request – without costs.

Terminations

N, NR (Cemented, Cemented Needle Rheodyne)



Needles are cemented into the glass syringe barrel at a point corresponding to the zero graduation mark. NR stands for syringes with Rheodyne specified needles.

LTN (Luer Tip Cemented Needle)



Needles are cemented into a conical glass luer tip of the barrel at a point corresponding to the zero graduation mark.

RN (Removable Needle)



Removable needles seat precisely to the zero graduation mark of the syringe. Therefore their connection is without dead volume.

Needles for syringes with a Volume 5 - 100µl are interchangeable, also Needles for syringes with a Volume 250µl – 10ml.

SL (SampleLock) Integrated On-/Off-Valve



SN (Special Needle)

Syringes with special length, gauge and syringe type. Please specify in your order.

LT (Luer Tip)



Ground glass syringe barrel with a male luer taper accepts most hypodermic needles. Use Kel-F hub needles and connectors for a tight seal. **LT-syringes are delivered without needles !**

TLL (Teflon® Luer Lock)



Male luer taper with nickel-plated brass hub accepts, and locks in place, luer hub needles and connectors. The X-style plunger stop incorporates a 6-32 UNC female thread on the end of the stop to allow attachment to drive arm mechanisms, such as on the MICROLAB 500 Series diluters/dispensers.

TLL-syringes are delivered without needles !

Needles When ordering needles or syringes please look at the „Gauge“. It is the definition of the needle OD and ID.


Gauge	OD x ID (mm)
26 S	0.47 x 0.13
23 S	0.64 x 0.13
22 S	0.72 x 0.15
22	0.72 x 0.41


Standard-needles


Standard-needles are made of 304 stainless steel. The length is 51 mm and point style 2 or 3.


Normal use is Gauge 26S for 5 µl and 10 µl syringes, Gauge 22S for 25 -250 µl syringes and Gauge 22 for syringes 500 µl volume and more.


Needle Point Styles

Pst 2:  10-12° beveled non-coring needle point recommended for septum penetration; only needle gauges 26s – 22 are recommended for optimum septum penetration.

Pst 3:  blunt needle point for use with HPLC injection valves and for sample pipetting.

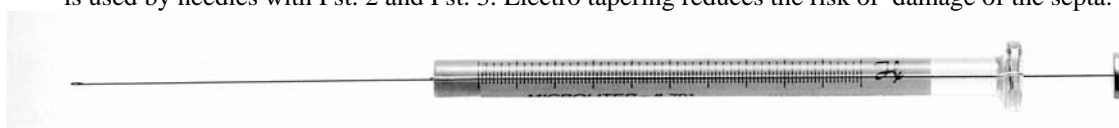
Pst. 4  these blunt needle point of 10° - 12° is mainly used for animal injections.

Pst 5:  conical needle with side port for penetration of septa, thin-gauged vinyls and plastics without coring; minimizes septum damage.

Pst AS:  special conical style needle point designed to withstand the demands of multiple injections; exclusively used on autosampler syringes.

Electro tapered

Electro tapering is a method to reduce a part of the needle material on electrochemical way. This method is used by needles with Pst. 2 and Pst. 3. Electro tapering reduces the risk of damage of the septa.



Syringes Series 700

5 µl – 500 µl

For use with **liquids**

Cemented needles (N), removable needles (RN) or luer tip (LT)

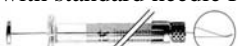
Plungers and syringe barrels are not interchangeable or replaceable.

Tight tolerances between the plunger and the barrel.

Operating Parameters

Max. temperature for cemented needle is 50 °C and all others 115 °C.

Max. test pressure is 6 bar.

Model		75	701	702	705	710	725	750
Volume		5 µl	10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
Gauge:		26S	26S	22S	22S	22S	22S	22
N, Pst. 2	P/N	06587900	06580300	06580400	06580500	06580600	06580700	06580800
								
	€ea.	44.20	32.40	43.60	53.20	63.20	67.80	77.00
N, Pst. 2, Six Pack	P/N		06580366					
	€ea.		161.40					
RN	P/N	06587930	06580330	06580430	06580530	06580630	06580730	06580830
with standard needle Pst. 2								
								
	€ea.	60.70	59.00	65.40	66.90	73.30	87.70	99.00
RN without needle	P/N	0657634-01	0657635-01	0657636-01	0657637-01	0657638-01	0657639-01	0657640-01
	€ea.	50.40	50.40	55.30	62.30	69.00	86.50	91.50
Replacement needles RN, Pst. 2	P/N	0657758-02	0657758-02	0657758-03	0657758-03	0657758-03	0657779-03	0657779-01
	€pk.*	47.00	47.00	47.00	47.00	47.00	57.40	57.10
Replacement needles RN, Pst. 3	P/N	0657768-01	0657768-01	0657770-01	0657770-01	0657770-01	0657780-03	0657780-04
	€pk.*	57.40	57.40	56.40	56.40	56.40	45.60	47.00
LT	P/N		06580301	06580401	06580501	06580601	06580701	06580801
								
	€ea.		65.70	78.70	77.20	84.00	90.10	102.70
Replacement needles LT/TLL, Pst.2	P/N		06590139	06590138	06590138	06590138	06590138	06590122
	€pk.*		93.00	93.00	93.00	93.00	93.00	87.60
Replacement needles LT/TLL, Pst.3	P/N		06590539	06590534	06590534	06590534	06590534	06590134
	€pk.*		92.20	92.20	92.20	92.20	92.20	88.00

* pk./6

Syringes Series 800



5 µl – 250 µl

For use with **liquids**

Removable needles (RN) or cemented needles (N)

Reinforced plungers

Barrel/plunger assemblies are replaceable

Plunger stop prevents plunger blowout

Operating Parameters

Max. temperature for cemented needle is 50 °C
and removable needle is 115 °C.

Max. test pressure is 6 bar.

Model		85	801	802	805	810	825
Volume		5 µl	10 µl	25 µl	50 µl	100 µl	250 µl
Gauge:		26S	26S	22S	22S	22S	22S
N, Pst. 2	P/N	06584850	06584852	06584854	06584856	06584858	
	€ea.	135.70	105.40	112.80	119.20	133.00	
RN, Pst. 2	P/N	06584851	06584853	06584855	06584857	06584859	06584861
	€ea.	152.20	114.60	114.60	116.40	120.10	150.40
Replacement needles	P/N	0657758-02	0657758-02	0657758-03	0657758-03	0657758-03	0657779-03
RN, Pst. 2	€pk.*	47.00	47.00	47.00	47.00	47.00	57.40
Replacement needles	P/N	0657768-01	0657768-01	0657770-01	0657770-01	0657770-01	0657780-03
RN, Pst. 3	€pk.*	57.40	57.40	57.40	57.40	57.40	45.60

* pk/6

Syringes Series 1000



1 ml – 100 ml

For use with **gases and liquids**

Precision-machined TEFLON PTFE-tipped plungers

Replaceable plungers

Operating Parameters

Max. temperature for Cemented Needle is 50 °C
and all others 115 °C.

Max. test pressure is 6 bar.

Model		1001	1002	1005	1010	1025	1050	1100
Volume		1 ml	2,5 ml	5 ml	10 ml	25 ml	50 ml	100 ml
Gauge:		22	22	22	22			
LTN, Pst. 2	Art.Nr.	06581317	06581417	06581517	06581617			
without stop	€ea.	65.00	58.20	80.90	96.30			
RN, Pst. 2	Art.-Nr.	06581330	06581430	06581530	06581630			
	€ea.	103.00	109.60	105.80	129.20			
Replacement needles	P/N	0657779-01	0657779-01	0657779-01	0657779-01			
RN, Pst.2	€pk.*	57.10	57.10	57.10	57.10			
Replacement needles	P/N	0657780-04	0657780-04	0657780-04	0657780-04			
RN, Pst.3	€pk.*	44.70	44.70	44.70	44.70			
LT, without stop	P/N	06581301	06581401	06581501	06581601			
	€ea.	60.40	62.30	67.70	80.40			
TLL, without stop	P/N	06581320	06581420	06581520	06581620	06582525	06585020	06586020
	€ea.	65.00	65.00	76.00	83.80	221.00	330.30	424.70
Replacement needles	P/N	06590122	06590122	06590122	06590122	06590122	06590122	06590122
LT/TLL, Pst. 2	€pk.*	87.60	87.60	87.60	87.60	87.60	87.60	87.60
Replacement needles	P/N	06590134	06590134	06590134	06590134	06590134	06590134	06590134
LT/TLL, Pst. 3	€pk.*	88.00	88.00	88.00	88.00	88.00	88.00	88.00

* pk/6

Syringes Series 1700

10 µl - 500 µl

For use with **gases and liquids**





Precision-machined TEFLON PTFE-tipped plungers

Operating Parameters

Max. temperature for Cemented Needle is 50 °C
and all others 115 °C.

Maximum test pressure is 6 bar.

Replaceable plungers

Model		1701	1702	1705	1710	1725	1750
Volume		10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
Gauge		26S	22S	22S	22S	22S	22
N. Pst. 2		P/N 06580000 €ea. 47.80	P/N 06580200 €ea. 52.80	P/N 06580900 €ea. 57.70	P/N 06581000 €ea. 60.40	P/N 06581100 €ea. 63.60	P/N 06581217 €ea. 60,40
RN. Pst. 2		P/N 06580030 €ea. 62.10	P/N 06580230 €ea. 67.10	P/N 06580930 €ea. 67.10	P/N 06581030 €ea. 71.40	P/N 06581130 €ea. 71.30	P/N 06581230 €ea. 71,30
RN. without needle		P/N 0657653-01 €ea. 58,10	P/N 0657654-01 €ea. 58,10	P/N 0657655-01 €ea. 60,80	P/N 0657656-01 €ea. 69,40	P/N 0657657-01 €ea. 69,40	P/N 0657658-01 €ea. 70,70
Replacement needles RN. Pst. 2		P/N 0657758-02 €pk.* 44,70	P/N 0657758-02 €pk.* 44,70	P/N 0657758-03 €pk.* 44,70	P/N 0657758-03 €pk.* 44,70	P/N 0657758-03 €pk.* 57,40	P/N 0657779-03 €pk.* 57,10
Replacement needles RN. Pst. 3		P/N 0657768-01 €pk.* 57,40	P/N 0657770-01 €pk.* 56,40	P/N 0657770-01 €pk.* 56,40	P/N 0657770-01 €pk.* 56,40	P/N 0657780-03 €pk.* 45,60	P/N 0657780-04 €pk.* 44,70
LT w/o Stop		P/N 06580001 €ea. 77.50	P/N 06580201 €ea. 60.40	P/N 06580901 €ea. 63.10	P/N 06581001 €ea. 60.40	P/N 06581101 €ea. 65.40	P/N 06581201 €ea. 62,30
TLL w/o Stop		P/N €ea.		P/N 06580920 €ea. 67.10	P/N 06581020 €ea. 67.10	P/N 06581120 €ea. 65.20	P/N 06581220 €ea. 60,60
Replacement needles		P/N 06590139	P/N 06590138	P/N 06590138	P/N 06590138	P/N 06590138	P/N 06590122
LT/TLL. Pst. 2		€pk.* 89,30	€pk.* 89,30	€pk.* 89,30	€pk.* 89,30	€pk.* 89,30	€pk.* 87,60
Replacement needles LT/TLL. Pst. 3		P/N 06590539 €pk.* 92,20	P/N 06590534 €pk.* 92,20	P/N 06590534 €pk.* 92,20	P/N 06590534 €pk.* 92,20	P/N 06590534 €pk.* 92,20	P/N 06590134 €pk.* 88,00

* pk/6

Syringes Series 7000

0.5 µl - 5 µl

For use with **liquids**

Removable needles (KH)

Positive displacement

Sample contained in the needle

No dead volume

Replaceable syringe parts

Operating Parameters

Max. temperature is 50 °C

Max. test pressure is 6 bar.



Model		7000.5	7001	7101	7002	7102	7105
Volume		0.5 µl	1 µl	1 µl	2 µl	2 µl	5 µl
Point Style Type Needle		Pst. 2	Pst. 2	Pst. 2	Pst. 2	Pst. 2	Pst. 2
Needle length (mm)		70	70	70	70	70	70
Needle-OD (mm)		0.50	0.47	0.70	0.50	0.63	0.56
Needle-ID (mm)		0.11	0.15	0.15	0.21	0.21	0.33
	P/N	06586259	06580135	06586211	06588411	06588511	06588011
	€ea.	110.90	83.80	81.60	104.50	110.00	96.30

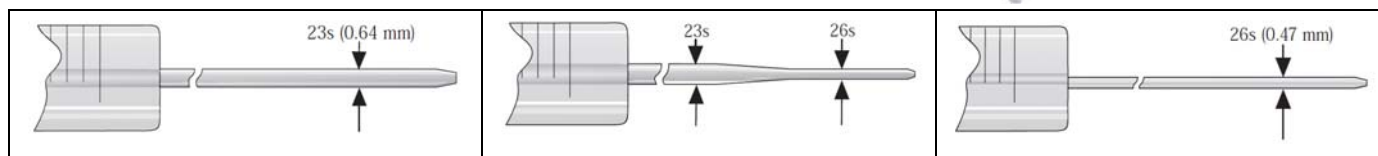
Point Style Type Needle		Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3
Needle length (mm)		70	70	70	70	70	70
Needle-OD (mm)		0.50	0.47	0.70	0.50	0.69	0.56
Needle-ID (mm)		0.11	0.15	0.15	0.21	0.21	0.33
	P/N	06586250	06580100	06586200	06588400	06588500	06588000
	€ea.	110.90	86.20	84.00	108.20	110.00	99.00
Chaney-Adapter (CH)	P/N	06514725	06514725	06514725	06514725	06514725	06514725
	€ea.	104.00	104.00	104.00	104.00	104.00	104.00

GC Autosampler Syringes

For manual sample injection as Autosampler of the leading GC manufacturer, is a comprehensive range of GC syringes. The autosampler syringes are designed to the specifications of the device manufacturers accordingly.

More Autosampler Syringes on request.

Agilent 7673, 7683, 7693 and 6850 Autosampler Syringes



Model HP 7673A Injektor Volume	7000.5 ASRN 0,5 µl	7001 1 µl	75 ASN-23S 5 µl	75 ASRN-23S 5 µl	75 ASN 5 µl	75 ASRN 5 µl
Point style	Pst. AS	Pst. AS	Pst. AS	Pst. AS	Pst. AS	Pst. AS
Gauge	23	23	23S	23S	23S-26S	23S-26S
Needle length (mm)	43	43	43	43	43	43
P/N	06586276	06580176	06587987	06587957	06587993	06587959
€ea.	168.50	111.70	76.00	87.80	76.00	86.00
Six Pack P/N			06587990		06587994	
€ea.			399.00		404.50	
Replacement needles €pk.*				0657786-01 83.70		0657785-01 88.70

Model HP 7673A Injektor Volume	701 ASN-23S 10 µl	701 ASRN-23S 10 µl	701 ASN 10 µl	701 ASRN 10 µl
Gauge	23S	23S	23S-26S	23S-26S
Needle length (mm)	43	43	43	43
Point style	Pst. AS	Pst. AS	Pst. AS	Pst. AS
P/N	06580387	06580357	06580393	06580359
€ea.	49.70	90.00	51.00	70.70
Six Pack P/N	06580390		06580391	
€ea.	267.80		280.60	
Replacement needles €pk.*		0657786-01 83.70		0657785-01 88.70

* pk/6

<h3>Thermo Scientific Autosampler Syringes</h3>	
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AS 800, AS 2000 Syringes

Thermo Sci. Finnigan AS 2000 Autosampler

Headspace HS 250/500/850 Syringes

AI/AS 3000 Tri Plus Syringes

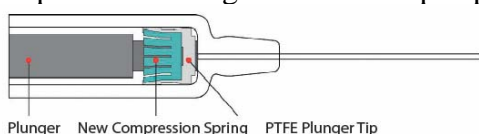
Model Volume	701 SN Fisons 10 µl	1002 LTN HS 22 2,5 ml	75 SN-26S 5 µl	75 SN-26S 5 µl	701 SN-26S 10 µl	701 SN-26S 10 µl
Devise Type	Thermo Sci. AS 800/2000	HS 250/500/850 CP 9020/9025	AI/AS 3000 Tri Plus	AI/AS 3000 Tri Plus	AI/AS 3000 Tri Plus	AI/AS 3000 Tri Plus
Needle length (mm)	80 mm	56 mm	50 mm	50 mm	50 mm	50 mm
Gauge	26S	22	26S	26S	26S	26S
Point style	Pst. AS	Pst. 5	Pst. AS	Pst. 2	Pst. AS	Pst. 2
P/N	065202066	065202660	065204051	065204000	065204052	065204001
€ea.	65.40	128.40	170.60	95.40	53.60	53.60

GC Autosampler Syringes

C-Line CTC PAL Combi-xt and PAL GC-xt Sampler vials and caps:

Crimp top vials and magnetic crimp caps: page 98-100

Screw top vials and magnetic screw caps: page 111



Syringes in Head-Space Version (with side port in the barrel)

CTC PAL Combi-xt Headspace Syringes

The C-Line Syringe Design

- New flange design for accurate syringe installation
- Adjustable button to prevent plunger tip damage
- Improved needle hub design for zero carry over
- Color coded hub for quick needle volume identification
- New plunger tip polymer for inert sampling and longer lifetime

Model	1001-CTC	1001-CTC	1002-CTC	1002-CTC	1005-CTC	1005-CTC
Volume	1 ml	1 ml	2,5 ml	2,5 ml	5 ml	5 ml
CTC P/N	SyrC HS 1,0 -23-5-HD	SyrC HS 1,0 -26-5-HD	SyrC HS 2,5 -23-5-HD	SyrC HS 2,5 -26-5-HD	SyrC HS 5,0 -23-5-HD	SyrC HS 5,0 -26-5-HD
Gauge	23	26	23	26	23	26
Point style	Pst. 5	Pst. 5	Pst. 5	Pst. 5	Pst. 5	Pst. 5
P/N	065203082	065203141	065203084	065203181	065203086	065203182
€ea.	162.30	172.40	162.30	181.60	181.60	267.80

Innovative **HDHT-Typ** Headspace Syringe

side port hole for
PAL Combi-xt Headspace Autosampler

Temperature stable to 200 °C

Glue-free needle attachment


Model	1001-HDHT	1001-HDHT	1002-HDHT	1002-HDHT	1005-HDHT	1005-HDHT
Volume	1 ml	1 ml	2,5 ml	2,5 ml	5 ml	5 ml
Gauge	23	26	23	26	23	26
Point style	Pst. 5	Pst. 5	Pst. 5	Pst. 5	Pst. 5	Pst. 5
P/N	065209681	065209682	065209683	065209684	065209685	065209686
€ea.	191.60	203.20	191.60	213.80	213.80	288.90

C-Line PAL Combi-xt and PAL GC-xt Liquid Injection Syringes

Model	7701.2-CTC	75 N-CTC	701 N-CTC	701 N-CTC	701 N-CTC	701 N-CTC	701 N-CTC
Volume	1,2 µl	5 µl	10 µl	10 µl	10 µl	10 µl	10 µl
CTC P/N	SyrC LI.2 -26-AS	SyrC L5 -26S-AS	SyrC L10 -23S-AS	SyrC L10 -23S/26S-AS	SyrC L10 -23S-2	SyrC L10 -26S-2	SyrC L10 -26S-AS
Gauge	0,46 mm AD	26S	23S	23S-26S	23S	26S	26S
Point style	Pst. AS	Pst. AS	Pst. AS	Pst. AS	Pst. 2	Pst. 2	Pst. AS
P/N	065203185	065203189	065203361	065203362	065203363	065203072	065203205
€ea.	139.40	100.90	88.90	138.50	88.90	80.70	85.30

Model	701 SN-CTC	1701 SN-CTC	1702-CTC	1710-CTC	1750-CTC
Volume	10 µl	10 µl	25 µl	100 µl	500 µl
CTC P/N	SN-Needle-Length (please specify)	SN-Needle-Length (please specify)	SyrC G25 -26S-AS	SyrC G100 -26S-AS	SyrC G500 -26-AS
Gauge	please specify	please specify	26S	26S	26
Point style	please specify	please specify	Pst. AS	Pst. AS	Pst. AS
P/N	065203198	065203206	065203043	065203076	065203080
€ea.	137.50	137.50	105.40	121.00	103.60

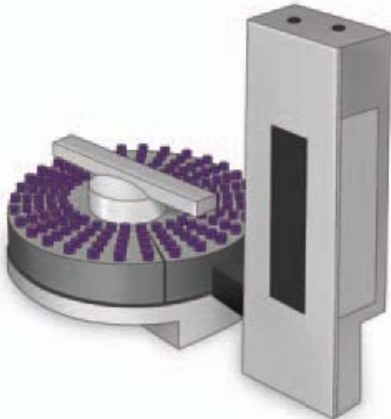
GC Autosampler Syringes

<h3>Varian/Chrompack Autosampler Syringes</h3>	 <p>Varian/Chrompack 8400 Autosampler</p>
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Varian CP 8400/8410 Syringes Varian 8100/8200 Syringe
 CP 9019/9050 Syringes



Model Volume	75 N 5 µl	701 N 10 µl	701 Six Pack 10 µl	701 SN 10 µl
Devise Type	Varian 8400/8410 CP 9019/9060	Varian 8400/8410 CP 9019/9060	Varian 8400/8410 CP 9019/9060	Varian 8100/8200
Needle Length (mm)	51 mm Pst. 2	51 mm Pst. 2	51 mm Pst. 2	50,5 mm Pst. 5
Gauge	26S	26S	26S	-
Needle OD (mm)	0.47	0.47	0.47	0.48
Needle ID (mm)	0.13	0.13	0.13	0.13
P/N.	06587900	06580300	06580366	065202880
€ea.	44.20	32.40	166.00	557.70

<h3>Shimadzu Autosampler Syringes</h3>	 <p>Shimadzu AOC-14 Autosampler</p>
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Shimadzu AOC-9 Syringes
 Shimadzu AOC-14/AOC-17/AOC-20 Syringes

Model Volume	75 RN 5 µl	701 RN 10 µl	75 RN 5 µl	701 RN 10 µl	701 N 10 µl
Devise Type	Shimadzu AOC-9	Shimadzu AOC-9	Shimadzu AOC-14/17/20	Shimadzu AOC-14/17/20	Shimadzu AOC-14/17/20
Gauge	26S	26S	22S	22S	23S
Point style	Pst. 2	Pst. 2	Pst. 2	Pst. 2	Pst. AS
Needle length	51 mm	51 mm	43 mm	43 mm	43 mm
P/N.	06587930	06580330	065202630	065202640	065202643
€ea.	60.70	59.00	156.80	105.40	121.00
Replacement needles €pk.*	0657758-02 44.70	0657758-02 44.70	065202645 69.50	065202645 69.50	

* pk/6

Syringes for Microlab 500



Diluter-Syringe DX for right side



Diluter/Dispenser-Syringe TLL/TLLX (with Plunger Stop) for left and right side

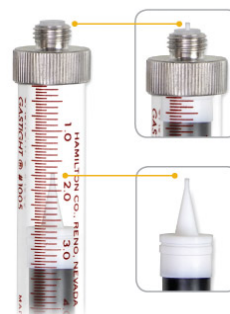
Model	1702 DX	1705 DX	1710 DX	1725 DX	1750 DX	1001 DX
Volume	25 µl	50 µl	100 µl	250 µl	500 µl	1 ml
P/N. €ea.	06580226 148.30	06580926 148.30	06581026 133.80	06581126 133.80	06581226 136.70	06581326 184.90

Model	1702 TLLX	1705 TLLX	1710 TLLX	1725 TLLX	1750 TLLX	1001 TLLX
Volume	25 µl	50 µl	100 µl	250 µl	500 µl	1 ml
P/N. €ea.	06580222 86.20	06580922 74.50	06581022 69.60	06581122 71.60	06581222 69.60	06581323 98.10

Model	1001 TLL	1002 TLL	1005 TLL	1010 TLL	1025 TLL
Volume	1 ml	2.5 ml	5 ml	10 ml	25 ml
P/N. €ea.	06581320 65.00	06581420 65.00	06581520 76.00	06581620 83.80	06582521 212.80

Syringes for Microlab 600

Same syringes for left and right side



Model	1701 BFP	1702 BFP	1705 BFP	1710 BFP	1725 BFP	1750 BFP
Volume	10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
P/N. €ea.	06659000-05 202.90	06659000-10 132.40	06659000-15 132.40	06659000-20 132.40	06659000-25 132.40	06659000-30 132.40

Model	1001 BFP	1002 BFP	1005 BFP	1010 BFP	1025 BFP	1050 BFP
Volume	1 ml	2.5 ml	5 ml	10 ml	25 ml	50 ml
P/N. €ea.	06659000-35 132.40	06659000-40 155.30	06659000-45 163.50	06659000-50 148.30	06659000-55 250.30	06659000-60 291.10

Hamilton Diluter and Dispenser Serie 600 on page 83 and 84.

HPLC Syringes

For the sample injection in HPLC there is a broad syringe program for all well known HPLC injectors. These are syringe models from the MICROLITER®-series (700) and GASTIGHT®-series (1700 and 1000 - with Teflon tip as inert plunger top), which ones are adapted to the respective HPLC injector with regard to their needle measurements.

Typical application with needle specification:

Rheodyne/Valco VISF 2: needle length 51 mm, OD 0.72 mm, Pst 3, not tapered

Please note the correct needle specification. A wrong needle damages the seal of the injector !!!

Syringes for Rheodyne/Valco VISF 2

(Beckmann/Altex, Rheodyne, Valco VISF-2, SSI injection valves)



Model Volume		701 NR 10 µl	702 NR 25 µl	705 NR 50 µl	710 NR 100 µl	725 NR 250 µl	750 NR 500 µl
Gauge		22S	22S	22S	22S	22	22
	P/N	06580365	06580465	06580565	06580665	06580765	06580865
	€ea.	44.90	46.60	51.10	63.30	66.20	77.20

Model Volume		1701 10 µl	1702 25 µl	1705 50 µl	1710 100 µl	1725 250 µl	1750 500 µl
Gauge		22S	22S	22S	22S	22	22
NR gastight syringe with fixed needle	P/N	06580008-R	06580275	06580975	06581075	06581175	06581216
	€ea.	100.90	67.10	67.10	62.20	65.40	62.20
RNR gastight syringe with removable needle	P/N	06580065	06580265	06580965	06581065	06581165	06581265
	€ea.	65.40	65.40	68.40	74.00	71.00	71.40
Replacement needles pk/6	P/N	0657770-01	0657770-01	0657770-01	0657770-01	0657780-04	0657780-04
	€pk.	56.40	56.40	56.40	56.40	44.70	44.70

Model Volume		1001 LTN 1 ml	1002 LTN 2.5 ml	1005 LTN 5 ml	1010 LTN 10 ml
Gauge		22	22	22	22
	P/N.	06581316	06581416	06581516	06581616
	€ea.	66.90	68.20	82.40	98.10

LC Autosampler Syringes for CTC

C-Line CTC PAL HTC-xt, HTS-xt, , HTX-xt



Model	701 N CTC	1701 N CTC	1702 N CTC	1702 N CTC Slim Line	1710 N CTC	1710 N CTC
Volume	10 µl	10 µl	25 µl	25 µl	100 µl	100 µl
CTC P/N	SyrC L10 -22S-3	SyrC G10 -22S-3	SyrC G25 -22S-3	SyrC G25S -22S-3	SyrC G100 -22S-3	SyrC G100 -22-3
Gauge	22S	22S	22S	22S	22S	22
Point style	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3
	P/N.	065203073	065203194	065203075	065203274	065203077
	€ea.	77.90	77.90	88.00	144.90	97.20

Model Volume	1725 N-CTC 250 µl	1750 N-CTC 500 µl	1001 CTC 1 ml	1002 CTC 2.5 ml	1005 CTC 5 ml
CTC P/N	SyrC G250-22-3	SyrC G500-22-3	SyrC G1000-22-3	SyrC G2500-22-3	SyrC G5000-22-3
Gauge	22	22	22	22	22
Point style	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3
	P/N.	065203079	065203349	065203081	065203083
	€ea.	81.60	88.00	77.60	77.60

X-Type-Syringes: X-Type syringes will near zero carryover and a long lasting plunger tip to meet requirement of high-throughput life science analytical syringes for sensitive applications. The syringe glass barrel is polished and sealed for inertness and enhanced lifetime. The needle is deactivated to reduce sample adsorption.

Model Volume	1702 X-Type 25 µl	1705 X-Type 50 µl	1710 X-Type 100 µl	1710 X-Type 100 µl
Gauge	22S	22S	22	22S
Point style	Pst. 3	Pst. 3	Pst. 3	Pst. 3
	P/N.	065204475	065204379	065204400
	€ea.	146.70	157.20	159.20

Agilent/Varian Autosampler Syringes

Agilent 1290 Infinity LC Injector HTC/HTS Syringes

Model	1701 N CTC	1702 N CTC	1710 N CTC	1725 N CTC	1750 N CTC	1001 N CTC
Volume	10 µl	25 µl	100 µl	250 µl	500 µl	1 ml
Gauge	22S	22S	22S	22	22	22
Point style	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3
Length	51 mm	51 mm	51 mm	51 mm	51 mm	51 mm
P/N	065203194	065203075	065203077	065203079	065203349	065203081
€ea.	77.90	88.00	97.20	81.60	88.00	77.60

Varian Prostar 410/420/430 Syringes

Model	1702 C Spark	1710 C Spark	1725 C Spark	1750 C Spark	1001 C Spark	1002 C Spark
Volume	25 µl	100 µl	250 µl	500 µl	1 ml	2.5 ml
Gauge	no needle	no needle	no needle	no needle	no needle	no needle
P/N	06562161-01	06554658-01	06554659-01	06554660-01	06554661-01	06554662-01
€ea.	162.70	127.10	127.10	127.10	127.10	127.10

Thermo Scientific Autosampler Syringes



AS 100/300, AS 1000/3000/3500 Syringes without needle

Thermo Scientific AS 3000 Autosampler

Model	1725 C Alcyon	1750 C Alcyon	1001 C	1002 C	1005 C
Volume	250 µl	500 µl	1 ml	2,5 ml	5 ml
P/N	065202145	065202192	06581360	06581460	06581560
€ea.	92.60	90.70	117.50	117.50	135.80

SP 8780/8875/8880 Syringes without needle

Model	1725 C Alcyon	1002 C
Volume	250 µl	2.5 ml
P/N	065202145	06581460
€ea.	92.60	117.50

Spark Autosampler Syringes

Spark Holland Midas, Triathlon, Endurance and Alias

Antec AS 100 and As 110

Dionex ESA Modell 542, 540 and 540MT

Beckmann Coulter 508

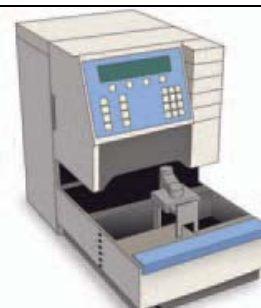
Grace/Alltech Modell 580

Scale length 60 mm

1/4"-28 UNF-Thread, without needle

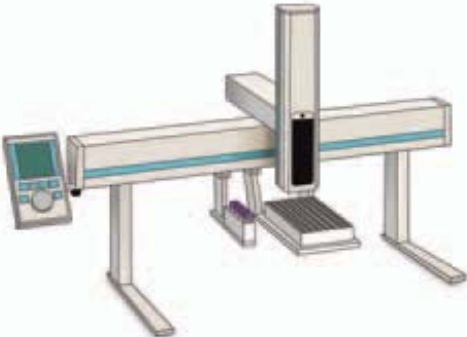


Spark Holland Midas



Spark Holland Endurance

Model	1702 C Spark	1710 C Spark	1725 C Spark	1750 C Spark	1001 C Spark	1002 C Spark
Volume	25 µl	100 µl	250 µl	500 µl	1 ml	2,5 ml
P/N	06562161-01	06554658-01	06554659-01	06554660-01	06554661-01	06554662-01
€ea.	162.70	127.10	127.10	127.10	127.10	127.10

<h2 style="margin: 0;">Waters Autosampler Syringes</h2>	
	<p>Waters 2777 Sample Manager</p>

Waters 2777 Sample Manager Syringes

Model	1701 N CTC	1702 N CTC	1710 N CTC	1725 N CTC	1750 N CTC	1001 CTC	1002 CTC
Volume	10 µl	25 µl	100 µl	250 µl	500 µl	1 ml	2,5 ml
Gauge	22S	22S	22S	22	22	22	22
Point style	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3	Pst. 3
Needle length	51 mm	51 mm	51 mm	51 mm	51 mm	51 mm	51 mm
P/N	065203194	065203075	065203077	065203079	065203349	065203081	065203083
€ea.	77.90	88.00	97.20	81.60	88.00	77.60	77.60

Waters 2707 Autosampler Syringes

Model	1702 C Spark	1710 C Spark	1725 C Spark	1750 C Spark	1001 C Spark	1002 C Spark
Volume	25 µl	100 µl	250 µl	500 µl	1 ml	2,5 ml
Gauge	no needle	no needle	no needle	no needle	no needle	no needle
P/N	06562161-01	06554658-01	06554659-01	06554660-01	06554661-01	06554662-01
€ea.	162.70	127.10	127.10	127.10	127.10	127.10

PerkinElmer Autosampler Syringes



PerkinElmer Serie 225 Autosampler

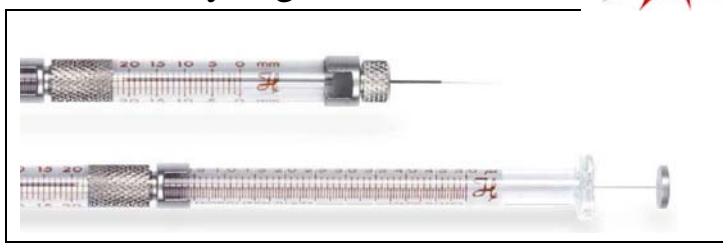
Serie 225, Flexar FX-10/FX-15 Syringes

Model	1702 C Spark	1710 C Spark	1725 C Spark	1750 C Spark	1001 C Spark	1002 C Spark
Volume	25 µl	100 µl	250 µl	500 µl	1 ml	2,5 ml
Gauge	no needle	no needle	no needle	no needle	no needle	no needle
P/N	06562161-01	06554658-01	06554659-01	06554660-01	06554661-01	06554662-01
€ea.	162.70	127.10	127.10	127.10	127.10	127.10

Serie 200 Syringes

Model	1705 CX	1725 CX	1750 CX	1001 C	1002 C
Volume	50 µl	250 µl	500 µl	1 ml	2,5 ml
Gauge	no needle	no needle	no needle	no needle	no needle
P/N	06580962	06581162	06581262	06581360	06581460
€ea.	103.00	101.10	98.20	117.50	117.50

Neuros™ Syringes



- Benefits of the Neuros Design:**
- Needle rigidity improves insertion path accuracy
 - Minimal tissue damage reduces injection variability
 - Reduced sample loss saves money and materials
 - Fine gauge needle creates smaller injection sites
 - Compatibility with most infusion pumps and stereotaxic holders means an easy integration into existing processes

Maximum Control, Minimum Damage

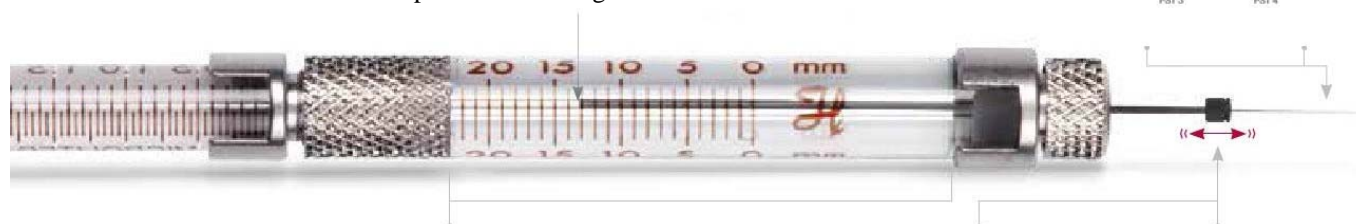
Hamilton Neuros™ syringe technology provides unprecedented functionality for controlled animal injections. An industry first, the Neuros accurately dispenses 50 nL to 100 µL of liquid through an ultrafine needle protected by a custom-designed sleeve. Developed specifically for the neurosciences, the Neuros minimizes injection site damage by increasing needle rigidity and delivering a microvolume of liquid to an exact location.

Flexible Options for a Variety of Uses

Neuros technology is offered on several models from the 700 Microliter™, 1700 Gastight® and 7000 Modified Microliter series. These syringes are crafted to have very little to no dead volume which preserves the maximum amount of buffer and solution. Neuros syringes feature a blunt point (point style 3) so the sample is delivered directly to the site; they also feature two different needle sleeves. The sleeve with a blind stop is perfect for cannulated applications and ensures targeted administration with an adjustable penetration depth. The version without a blind stop works best with stereotaxic holders. Both types provide an adjustable needle exposure of 0 to 20 mm.

The plunger for the 7000 series Neuros syringe is a tungsten wire that extends the entire length of the needle all the way to the tip, resulting in zero dead volume. The 700 and 1700 series Neuros syringes feature traditional plungers with 33 gauge needles resulting in minimal dead volume.

The black needle sleeve is easy to see through the barrel and indicates the exposed needle length.



The Neuros adapter provides support for the ultrafine gauge needle. Its scale graduations help you set the needle exposure length.

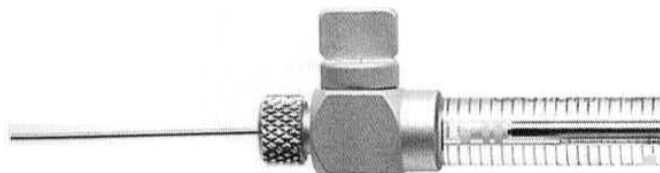
Each Neuros syringe comes with two needle sleeves— one with a blind stop (shown) for cannulated applications and another without that works best with stereotaxic holders. Both sleeves increase needle rigidity and minimize injection site damage.

Adjust the needle exposure from 0–20 mm by sliding the needle sleeve in and out by hand. Tighten the nut to secure.

Model Neuros Volume	NRS7000.5 KH 0.5 µl	NRS7000.5 KH 0.5 µl	NSR7001 KH 1.0 µl	NSR7001 KH 1.0 µl	NSR7002 KH 2.0 µl	NSR7002 KH 2.0 µl
Gauge	32	32	32	32	30	30
Point style	Pst. 3	Pst. 4	Pst. 3	Pst. 4	Pst. 3	Pst. 4
P/N.	06565457-01	06565457-02	06565458-01	06565458-02	06565459-01	06565459-02
€ea.	375.00	375.00	345.90	345.90	357.80	357.80
Model Neuros Volume	NSR75 RN 5 µl	NSR75 RN 5 µl	NSR1701 RN 10 µl	NSR1701 RN 10 µl	NSR1702 RN 25 µl	NSR1702 RN 25 µl
Gauge	33	33	33	33	33	33
Point style	Pst. 3	Pst. 4	Pst. 3	Pst. 4	Pst. 3	Pst. 4
P/N.	06565460-02	06565460-03	06565460-05	06565460-06	06565460-10	06565460-11
€ea.	365.80	365.80	323.60	323.60	316.30	316.30
Model Neuros Volume	NSR1705 RN 50 µl	NSR1705 RN 50 µl	NSR1710 RN 100 µl	NSR1710 RN 100 µl	NRS Needle RN 6/pk.	NRS Needle RN 6/pk.
Gauge	33	33	33	33	33	33
Point style	Pst. 3	Pst. 4	Pst. 3	Pst. 4	Pst. 3	Pst. 4
P/N.	06565460-15	06565460-16	06565460-20	06565460-21	06565461-01	06565461-02
€ea.	316.40	316.40	309.90	309.90	174.70	174.70
Adapter Kit for 700/1700 RN-Syringes	NRS ADKIT 700/1700 RN (Pst.3)			NRS ADKIT 700/1700 RN (Pst.4)		
P/N.	06565460-01			06565460-04		
€ea.	271.80			271.80		

SampleLock Syringes

On/Off syringe valve with RN needle is cemented to a syringe barrel. Used for headspace, environmental sample collection and storage, pre-pressurization of gaseous samples for GC analysis and sample spiking.



Model 1700 Series	1705 SL	1710 SL	1725 SL	1750 SL
Volume	50 µl	100 µl	250 µl	500 µl
P/N	06580956	06581056	06581156	06581256
€ea.	169.50	165.60	194.50	194.50
Replacement needles pk/6	P/N 0657779-03 €pk. 57.40	P/N 0657779-03 €pk. 57.40	P/N 0657779-03 €pk. 57.40	P/N 0657779-01 €pk. 57.10

Model 1100 Series	1001 SL	1002 SL	1005 SL	1010 SL	1025 SL	1050 SL	1100 SL
Volume	1 ml	2 ml	5 ml	10 ml	25 ml	50 ml	100 ml
P/N	06581356	06581456	06581556	06581656	06586326	06586336	06586346
€ea.	235.90	253.30	302.40	302.40	466.10	647.20	757.90
Replacement needles pk/6	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10	P/N 0657779-01 €pk. 57.10

Replacement needles: **for all SL syringe types you need needles like for syringes > 250µl** (with a larger sealing ring!);
needles for syringes 5-100µl do not fit correct!

Replacement Needles for RN Syringes

Replacement Needles for RN Syringes. (700 RN, 800 RN, 1700 RN) pk/6



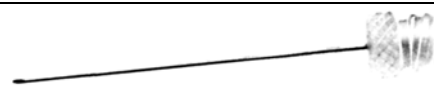
5 µl – 100 µl Sealing and Ferrule are smaller than —————> 250µl – 500 µl

Needles for RN-Syringes 5µl – 100µl				Sealing Ring		Pst. 2		Pst. 3		Pst. 5	
Length	x OD	x ID	Gauge	P/N	€ea.	P/N	€pk.	P/N	€pk.	P/N	€pk.
51 x 0.47	x 0.13	mm	26S	06530920	4.90	0657758-02	44.70	0657768-01	57.40	0657784-07	174.30
51 x 0.72	x 0.15	mm	22S	06530919	4.90	0657758-03	44.70	0657770-01	56.40	0657784-05	174.30
51 x 0.72	x 0.41	mm	22	06530919	4.90	0657758-01	45.60	0657770-02	57.40	0657784-06	174.30

Needles for RN-Syringes 250 µl – 500µl				Sealing Ring		Pst. 2		Pst. 3		Pst. 5	
Length	x OD	x ID	Gauge	P/N	€ea.	P/N	€pk.	P/N	€pk.	P/N	€pk.
51 x 0.47	x 0.13	mm	26S	06530923	4.90	0657779-02	57.40	0657780-01	57.40	0657784-03	174.30
51 x 0.72	x 0.15	mm	22S	06530922	4.90	0657779-03	57.40	0657780-03	45.60	0657784-01	174.30
51 x 0.72	x 0.41	mm	22	06530922	4.90	0657779-01	57.40	0657780-04	44.70	0657784-02	174.40

Replacement Needles for LT and TLL Syringes


Needles Type **KF** for Syringes with Luer Tip (LT), pk/6 or Luer Lock (TLL)




Needles for TLL Syringes 10µl – 250µl				Pst. 2		Pst. 3		Pst. 5	
Length	x OD	x ID	Gauge	P/N	€pk.	P/N	€pk.	P/N	€pk.
51 x 0.72	x 0.15	mm	22S	06590138	89.30	06590534	92.20	0657746-11	156.90
recommended for 1750 TLL and larger for 1001 – 1010 LT & TLL				Pst. 2		Pst. 3		Pst. 5	
Length	x OD	x ID	Gauge	P/N	€pk.	P/N	€pk.	P/N	€pk.
51 x 0.72	x 0.41	mm	22	06590122	87.60	06590134	88.00	0657746-06	156.90

Standard hub, type **KF** consists of PTCFE;

Metal hub, Type **N**; consists of nickel plated brass: price and P/N on request.

<h2 style="margin: 0;">PB600-1 Repeating Adapter</h2> <p style="margin: 10px 0 0 20px;">Used for N-Syringes of 700er-, 1700er and 1000er-Series smaller than 2.5 ml</p>	
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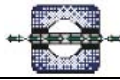


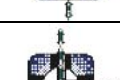





Model Volume	701/1701 10 µl	702/1702 25 µl	705/1705 50 µl	710/1710 100 µl	725/1725 250 µl	750/1750 500 µl	1001 1 ml
Volume to Dispense	0.2 µl	0.5 µl	1 µl	2 µl	5 µl	10 µl	20 µl
P/N	06583700	06583700	06583700	06583700	06583700	06583700	06583700
Price without Syringe €ea.	141.20	141.20	141.20	141.20	141.20	141.20	141.20

<h2 style="margin: 0;">Chaney-Adapter</h2>	
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Model Volume	701/1701 10 µl	702/1702 25 µl	705/1705 50 µl	710/1710 100 µl	725/1725 250 µl	750/1750 500 µl
P/N	06514700	06514725	06514725	06514725	06514725	06514725
Price without Syringe €ea.	98.20	104.00	104.00	104.00	104.00	104.00

Chaney-Adapter for Syringes of 7000er-Serie see page 72

Valves (other Valves on Request)

Flow Diagram	Valve Description	Valve Model	HV Valve  P/N	€ea.	HVP Valve  P/N	€ea.	HVX Valve  P/N	€ea.
	180° Flow Path 2-Port	1-1	06686725	109.70	06686775	106.90	06686901 ¹⁾	176.20
	90° Flow Path 3-Port	3-2	06686728	105.90	06686778	111.70	06686904 ¹⁾	176.20
	Loop-Flow Path 4-Port	4-4	06686729	115.50	06686779	114.60	06686905 ¹⁾	176.20
	90° Flow Path 4-Port	4-2	06686731	128.10	06686781	128.10	06686907 ¹⁾	178.10
	Distribution- Flow Path 3-Port	3-5			06686787	110.70	06686912 ¹⁾	173.30
	Distribution- Flow Path 4-Port	4-5	06686738	142.50	06686788	121.30	06686913 ¹⁾	173.30
	Distribution- Flow Path 6-Port	6-5					06686915	255.20
	180° Flow Path 8-Port	6-6					06686916 ²⁾	238.80
	180° Flow Path 2-Port	8-7					06686919 ²⁾	238.80

HV valves constitute a basic unit for control of fluids.

HVP valves are the same as the **HV** except they can be mounted into panels.

HVX-valves with a larger port-Ø allow increased fluid flow even with moderately viscous fluids.

All valves with a 1.5 mm port-Ø; except ¹⁾ with 3 mm port-Ø and ²⁾ with 1 mm port-Ø

Hamilton - Diluter and Dispenser



Sample Preparation becomes easier for many applications

Most chemical analysis starts with sample preparation. Laborious, repetitive and error prone, these time-consuming yet critical tasks must be performed accurately with each new sample.

Hamilton semi-automatic diluters and dispensers....

- save time
- reduce costs
- simplify the sample preparation
- nearly eliminates user errors

Only spare parts for the Hamilton Diluter/Dispenser Serie 500 available!

P/N	Description	€ea.
066240310	FEP tubing for Microlab 500 Series 2 x 1 x 900 mm, not tapered	31.50
066240010	FEP tubing for Microlab 500 Series 2 x 1 x 650 mm, not tapered	30.00
066240130	FEP tubing for Microlab 500 Series 2 x 1 x 900 mm, tapered	35.70
066240360	FEP tubing for Microlab 500 Series 2.9 x 2 x 900 mm, tapered	36.70
066240000	FEP tubing for Microlab 500 Series 2.9 x 2 x 650 mm, not tapered	30.00
06635825	Microlab 501A/510B/511C – Single dispenser valve, metric, TLL	173.30
06635844	Microlab 503A/530B/531C – Diluter valve, metric, TLL	483.50
06635842	Microlab 504A/540B/541C – Dual dispenser valve, metric, TLL	531.60

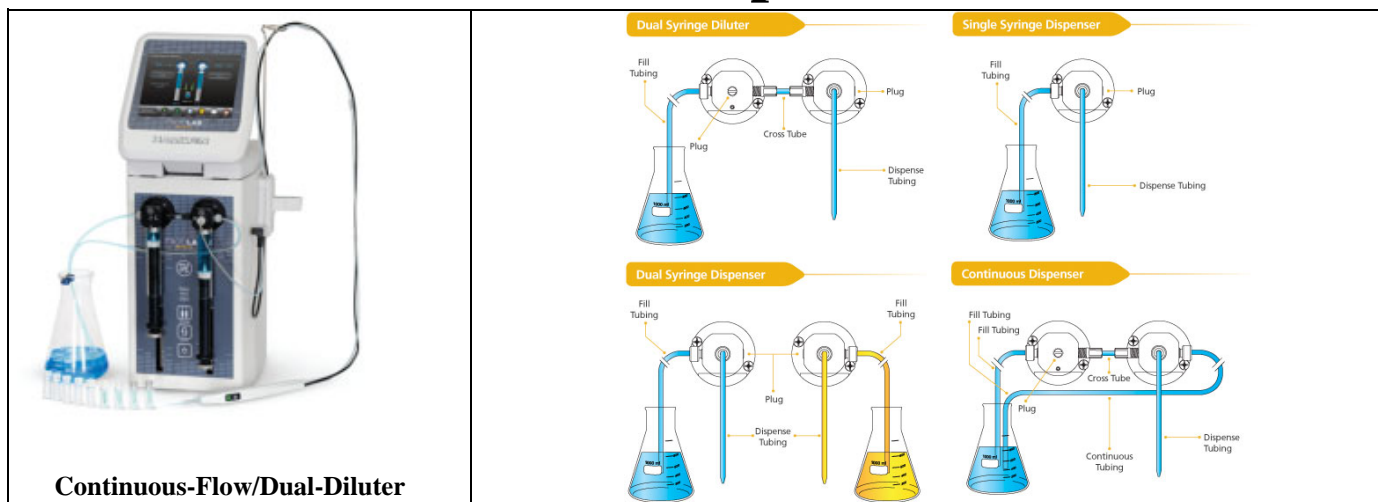
Successors are those Hamilton Diluter/Dispenser Serie 600!



Advantages over the series of 500

- simple operating
- high precision universal valve
- patented syringe technology for bubble-free working
- touch screen control of all features
- simple method development and storage
- software can be updated from Hamilton website

Hamilton - Diluter and Dispenser Series 600



P/N	Description	€ea.
066ML620-DIS	Single Syringe Dispenser: inclusive Concorde Push-button hand probe and 1 universal valve, connection tube and 1 syringe of choice	5778.80
066ML625-DIL	Dual Syringe Dispenser: inclusive Concorde Push-button hand probe and 2 universal valves, connection tubes and 2 syringe of choice	6621.60
066ML630	Single Pump PC Controlled: without Controller, without Concorde Push-button hand probe. without connection tube, inclusive 1 universal valve and 1 syringe of choice	5056.50
066ML635	Dual Pump PC Controlled: without Controller, without Concorde Push-button hand probe. without connection tube, inclusive 2 universal valves and 2 syringes of choice	5658.50
06661615-01	PTFE-Fill Tubing GA 18, 2 x 1 x 1219 mm, not tapered	39.30
066240134	FEP-Dispense Tubing GA 18, 2 x 1 x 1372 mm, tapered	38.40
06661614-01	PTFE-Fill Tubing GA 12, 2,9 x 2 x 1219 mm, not tapered	37.30
066240133	FEP-Dispense Tubing GA 12, 2,9 x 2 x 1372 mm, tapered	38.40
06661498-01	Valve Cross Tube Assembly	26.50
06660676-01	Left Valve Assembly	241.50
06660675-01	Right Valve Assembly	241.50
06662541-01	Dual Push Button Probe	750.70
06661401-01	Concord Probe	244.10
06661729-01	Valve Plug	18.10





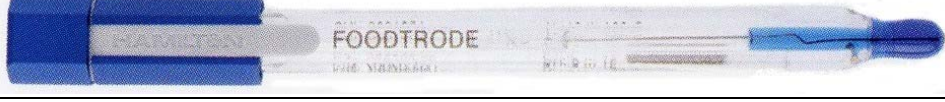
CS offers the complete Hamilton Diluters and Dispensers Program including Syringes and Accessories.

Syringes for Hamilton Diluter/Dispenser of Serie 600 on page 76.

The single syringe and dual syringe Diluters/Dispensers are best for your work.



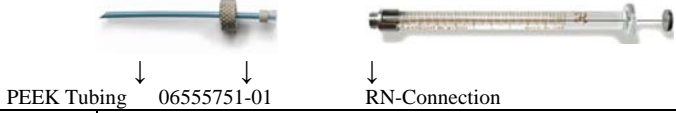

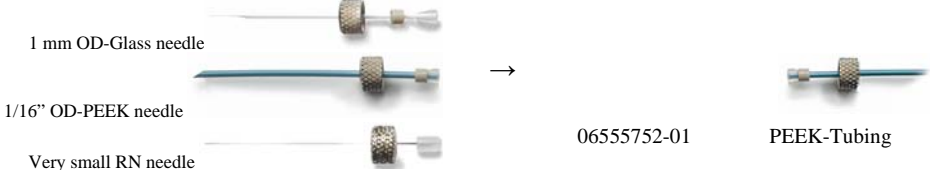


Please ask for more information and complete price list.

Hamilton pH-Electrodes

<p>pH: 0-14 Temp: 0 – 60 °C Electrolyte. SKYLYTE-CL (refillable) Diaphragm: ring diaphragm Sensor connection: S7 connector head</p>	<p>FILLTRODE P/N 066242064 189.00 €ea. Robust pH electrode with plastic shaft Multiple applications, thanks to its flat membrane: e.g. for viscous media Easy to clean, the ring diaphragm prevents clogging Shaft diameter 12 mm, Length 120 mm</p>
	
<p>pH: 0-14 Temp: 0 – 100 °C Electrolyte. SKYLYTE-CL (refillable) Diaphragm: SINGLE PORE Sensor connection: S7 connector head</p>	<p>SINGLE PORE GLASS P/N 066238160 189.00 €ea. Highest accuracy and fast response time thanks to patented SINGLE PORE diaphragm Wide applicability, use for emulsions, ion-weak media or general laboratory applications Minimal alkali error Shaft diameter 12 mm, Length 120 mm</p>
	
<p>pH: 0-14 Temp: -10 – 100 °C Electrolyte. 3 M KCl (refillable) Diaphragm: ceramic Sensor connection: S7 connector head</p>	<p>LIQ-GLASS P/N 066238000 145.00 €ea. Robust, combination pH electrode for daily laboratory use Universally applicable, in strong acids as well as in strong bases Ideally suited for acid/base titrations Shaft diameter 12 mm, Length 120 mm</p>
	
<p>pH: 0-14 Temp: 0 – 100 °C Electrolyte. 3 M KCl (refillable) Diaphragm: ceramic Sensor connection: S7 connector head</p>	<p>MINITRODE P/N 066238100 245.30 €ea. Combination pH electrode for measurements in very small volumes, e.g. vials Requires an immersion depth of only 7 mm Shaft diameter 3mm, Length 60mm.</p>
	
<p>pH: 0-14 Temp: 0 – 100°C Electrolyte. PROTELYTE (refillable) Diaphragm: ceramic, 3 pcs. Sensor connection: S7 connector head</p>	<p>FOODTRODE Art.-Nr. 066238285 184.00 €ea. Combination, robust pH electrode for measurements in protein-rich media 3 Ceramic diaphragm, easy to clean Shaft material: glass Reference system: EVEREF</p>
	
<p>Cables for Electrodes on request</p> <ul style="list-style-type: none"> - Cable with S7-Jack and BNC Plug - Cable with S7-Jack and DIN Plug - Cable with S7-Jack and Lemo Plug 	
<p>pH- and Redox Buffer Solutions and Conductivity Standards on request</p>	



Glass Pipettes & PEEK Capillary Union

For fast and secure connection of glass capillary needles and PEEK capillaries with RN syringes (interchangeable needles) and KH syringes (knurled hub). The accessories designed for applications where it comes to low dead volume and a simple connection (such as MS tuning, neuroscientific applications, electrophysiology, single cells micro injections, etc).

	P/N	Description:	Unit	€/ea.
	065PRMKIT	Priming Kit For rinsing and filling ultra-low RN-Syringes. Contains: 1 ea. Syringe 250µl (06581120), 1 pk/6 Needle Ga 30 (06590030), 1 pk/25 Septa (06575826)		209.00
	06555750-01	RN Compression Fitting 1 mm		75.20
	06555751-01	RN Compression Fitting 1/16"		75.20
For direct Connection of drawn glass capillaries or 1/16" OD PEEK Capillaries with a syringe body (RN).				
 <p>PEEK Tubing 06555751-01 RN-Connection</p>				
	06555752-01	Dual RN Coupler Syringe body (10,49 µl) with two RN-Connection		55.10
	 <p>1 mm OD-Glass needle 1/16" OD-PEEK needle Very small RN needle</p> <p>06555752-01 PEEK-Tubing</p>			
	06555753-01	Luer to RN Adapter Adapter with Luer-Lock and RN-Connection		50.10
	 <p>1 mm OD-Glass needle 1/16" OD-PEEK needle Very small RN-needle</p> <p>06555752-01 06555753-01 25 Gauge 7000 Syringe</p>			

More information you find on our website www.cs-chromatographie.de.

HPLC-certificated Disposable hypodermic syringe of Polypropylen (PP)

	Luer Slip		Luer Lock		
<ul style="list-style-type: none"> • Manufactured of ISO 13485 (Medicine products) • No plasticizers, no Latex, no PVC • Easy to read Graduation • Delivered with Luer Lock (centric) and Luer Slip 		<ul style="list-style-type: none"> • HPLC-Certificate of every batch • Rinsing 48 hrs. with H₂O:MeOH:AN = 10:10:80 • Eluat measured by UV 220 nm against blank 			
Description		Conection Luer Slip		Conection Luer Lock	
		P/N	€/ea.	P/N	€/ea.
Disposable hypodermic syringe	2 ml, non sterile, pk/100	592001	10.00	592011	16.00
Disposable hypodermic syringe	5 ml, non sterile, pk/100	592002	14.00	592012	24.00
Disposable hypodermic syringe	10 ml, non sterile, pk/100	592003	20.00	592013	32.00
Disposable hypodermic syringe	20 ml, non sterile, pk/100	592004	26.00	592014	40.00

Vials — Closures — Pliers

Dear customer,

we revised our program „Sample Vials and Closures, including Crimper and Decapper Tools“ with the present edition of our Catalog 2016-d.

Sometimes we were able to reduce the prices due to favorable purchase condition!



Certicated Sample bottles and closures	Page 91
Champagne vials (V-Vials)	Page 94, 102, 104
CERTAN bottles	Page 113

New P/N System for using an EDP equipment – explanation see page 93.

Survey of available Sample Vials and Closures:

▪ Introduction – Table of Contents – Material Description	Page 87
▪ Crimper and Decapper - mechanic and pneumatic Crimper and Decapper Tools	Page 88
▪ Electronic Crimper and Decapper Tools for battery and mains operation	Page 89
▪ Silanized and siliconized vials	Page 90
▪ Certicated Sample bottles and closures	Page 91
▪ Micro Inserts	Page 92
▪ Crimp Top Vials and Crimp Caps 8 mm, Combi Packs R 8	Page 93
▪ Crimp Top Vials 11 mm, Crimp Caps 11 mm, Combi Packs R 11	Page 94-95
▪ Snap Top Vials SR 11, Flat Bottom Vials 1 to 4 ml	Page 96
▪ Crimp Top Vials 13 mm, Crimp Caps 13 mm, Combi Packs R 13	Page 97
▪ Crimp Top Vials 20 mm, Crimp Caps 20 mm, Combi Packs 20 mm	Page 98-100
▪ Snap Cap Vials 5 to 50 ml, Crimp Top Bottles 50 to 1000 ml, Crimp Caps R 32	Page 101
▪ Screw Top Vials (Thread G 8), Screw Caps, Sealing Disks, Combi Packs	Page 102-103
▪ Short Neck Screw Top Vials (Thread G 9), Screw Caps with Sealing Disks, Combi Packs	Page 104-105
▪ Screw Top Vials (Thread G 10) with large port, Screw Caps, Sealing Disks, Combi Packs	Page 105
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▪ Screw Top Vials (Thread G 15, 16, 20), Screw Caps, Sealing Disks, Combi Packs 8-24 ml	Page 107-108
▪ Amber Glass Screw Top Vials (Thread G 18), Screw Caps, Sealing Disks, Combi Packs	Page 109-110
▪ PET Vials G 10, amber and Szintillation Vials 20 ml	Page 110
▪ Screw Top Vials for Head Space (Thread G 18), magnetic Screw Caps and Sealing Disks	Page 111
▪ EPA Screw Top Vials (Thread G 24), Screw Caps, Sealing Disks	Page 112
▪ CERTAN capillary bottles	Page 113
▪ Container with Top for Sample Vials, Vial Racks, Supporting Racks, Clean Up Rack	Page 113-115

Little Material Theory for Glass, Plastics and Sealing Disks:



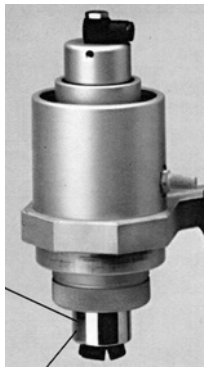

Description	Material Description	Temperature Stability*
Glass 3 rd hydrolyt. class according to DIN ISO 719	AR Glass (Alkali glass)	> 500°C
Glass 1 st hydrolyt. class according to DIN ISO 719	Borosilicate Glass	> 500°C
Sample Vials made of PET	Polyethylenterephthalene	-40 to + 110°C
Sample Vials made of TPX	Polymethylpentene	-20 to + 170°C
Sample Vials and Screw Caps made of PP	Polypropylene	-20 to + 125°C
Screw Caps made of PE	Polyethylene	-20 to + 105°C
Screw Caps made of PU	Polyurethane	-20 to + 125°C
Screw Caps made of PP	Polypropylene	-20 to + 125°C
Screw Caps made of Bakelite	Urea resin	±0 bis + 120°C
Sealing Disks made of NK/PTFE	Natural Rubber/PTFE coated	- 40 to + 120°C
Sealing Disks made of BK/PTFE	Butyl Rubber/PTFE coated	- 40 to + 120°C
Sealing Disks made of Silicone/PTFE	Silicone/PTFE coated	- 60 to + 200°C
Sealing Disks made of Silicone/Aluminium	Silicone/Aluminium coated	- 60 to + 220°C
Sealing Disks made of PTFE	PTFE = Polytetrafluoroethylene = Teflon	-120 to + 260°C
Sealing Disks made of Viton	Viton	-20 to + 316°C

* Manufacturers' Instructions

Crimpers and Decappers for Crimp Top Vials with Crimp Caps

	P/N	Description	€ea.
 <p>Crimpers R 11, R13 and R 20 are adjustable. Allen Wrench and Adjustment Guide are enclosed.</p>	310508	Crimper R 8 for Crimp Caps 8 mm	198,00
	310500	Crimper R 11 for Crimp Caps 11 mm	198,00
	310505	Crimper R 13 for Crimp Caps 13 mm	198,00
	310510	Crimper R 20 for Crimp Caps 20 mm	198,00
	40310532	Crimper R 32 for Crimp Caps 32 mm	508,00
	310515	Decapper R 8 for Crimp Caps 8 mm	198,00
	310550	Decapper R 11 for Crimp Caps 11 mm	198,00
	310555	Decapper R 13 for Crimp Caps 13 mm	198,00
	310560	Decapper R 20 for Crimp Caps 20 mm	198,00
	40310582	Decapper R 32 for Crimp Caps 32 mm	508,00
	310529	Repair service incl. adjustment	45.00
	310545 	Decapper for all Crimp Caps Sizes R 20 to R 32	44.00
	310548	Opening Tool R 0 (Cutting Tool) for all Crimp Caps Sizes R 8 to R 32	52.00

Mechanical Crimper and Decapper for Crimp Caps

Picture	P/N	Description	€ea.
 <p>Schließkopf</p>  <p>Öffnungskopf</p>  <p>Pneumatic Unit</p>	403600	Tripod	197.00
	403605	Pneumatic Unit with Holder and Foot Switch for Crimp Heads	1070.00
	403620	Crimp Head 8 mm	225.00
	403625	Crimp Head 11 mm	208.00
	403630	Crimp Head 13 mm	208.00
	403645	Decapper Head 8 mm	212.00
	403650	Decapper Head 11 mm	212.00
	403665	Vial Guide 11 mm	134.00
	403670	Vial Guide 13 mm	134.00
	403675	Vial Guide 20 mm	134.00
	P/N 400605-Set*	995.00 €Special price net Complete set pneumatic Decapper consisting of: Trpoid, Pneumatic unit, Foot Switch, Crimp head (optional R 8, R 11, R 13) Or Decapper head (optional R 11, R13). <i>Please enter the desired head when ordering!</i>	

Note:

All Crimpers and Crimper units (except Electronic Crimpers) are usable also for magnetic Crimp Caps (Special alloy).
Needed pressure for Aluminium Crimp Caps : 6 bar - for magnetic Crimp Caps you need 10 bar.

Special creations, e.g. for Flip-Off-Caps are available on request.

Electronic Crimpers and Decappers

- Now 6.4 Volt Power Pack version
 - stronger motor – faster crimping cycle
 - Lithium ion rechargeable battery with charge level indicator
 - workable during the charging process
 - for all 8 mm and 20 mm Aluminium Crimp Caps and 20mm Ring Crimp Caps
 - electronic controlled crimping force & adjustable length of stroke
 - easy to use – consistent lock
 - ergonomic design
 - also applicable to vials in vial racks and standard autosampler trays
 - Use as a device by tripod and mounting unit
- New Version with **direct Power Connection** (220 Volt-Power Supply Unit, without Power Pack)
 - Easy to change Crimp- and Decapper Head 8, 11, 13 und 20 mm
 - Storing programs for different caps
 - For all Aluminium-, Stainless Steel- and magnetic caps
 - Use as a device by tripod and mounting unit



P/N	Description	€ea.	P/N	Description	€ea.
029108	Electronic Crimper 8 mm	658.00	029150	Elektronic Decapper Unit (without Head, without Tripod!)	1150.00
029111	Electronic Crimper 11 mm	658.00			
029113	Electronic Crimper 13 mm	658.00			
029120	Electronic Crimper 20 mm	658.00			
			029151	Crimp Head 8 mm	325.00
			029152	Crimp Head 11 mm	325.00
			029154	Crimp Head 13 mm	325.00
029122	Electronic Decapper 11 mm	658.00	029156	Crimp Head 20 mm	325.00
029123	Electronic Decapper 13 mm	658.00	029153	Decapper Head 11 mm	325.00
029124	Electronic Decapper 20 mm	658.00	029155	Decapper Head 13 mm	325.00
029119	Lithium Ionen Ersatzakku 6,4 Volt	151.00	029157	Decapper Head 20 mm	325.00
029158	Tripod and mounting unit	190.00	029158	Tripod and mounting unit	190.00

029136	Complete Set off: Electronic Crimper 20 mm with tripod and mounting unit (as shown in figure above right)	838.00	029166	Complete Set off: Electric Crimper Unit, Crimp Head 20 mm with tripod and mounting unit (as shown in figure above right)	1595.00
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The Complete Set can supply with the same price with another Crimper or Decapper above!

Replacement Battery (old version) are until further notice still available:		
029106	Replacement Battery (NiMH) 4.8 Volt	151.00
029101	Replacement VersaPak®-Gold 3.6 Volt Battery	51.00

All information for the adjustment of our crimpers on page 88 and 89 as well as assembles and adjusting instructions to the mechanical and pneumatic crimpers and decappers you will find as product information under www.cs-chromatography.com

Silanized Sample Vials



Silanized sample vials can prevent adsorption of analytes on the glass surface. The technology of silanization which is well established for the deactivation of injection liners in the gas chromatography now is also available in the fields of sample preparation and storage. Sensitive compounds like pesticides, amines, phenols, steroids, proteins etc. tend to adsorption on untreated glass surfaces and therefore might give incorrect results. Additionally enzymes can be inactivated by denaturation on the glass surface. Deactivated surfaces lead to improved analyses in these cases. All information about our "standard" and „*INNO-Sil*®“ deactivations you will find on pages 20 and 21 of this catalog.



Vials and Glass Micro Inserts

pk/100, Glass of 1st Hydrolytic Class according to DIN ISO 719, neck opening 5/*6 mm

P/N	Type	Volume	Description	€/pk/100	
				-Sil	- <i>INNO-Sil</i>
Appendix→	- Sil for standard deactivation - <i>INNO-Sil</i> for special deactivation				
300101-	Vial G 1, clear	1.5 ml	Screw top vial 8 mm	28.05	30.85
301120-	Vial R 1, clear /6.2 mm*	1.5 ml	Crimp cap vial 11 mm	26.60	29.25
301128-	Vial R 1, amber/6.2mm-BF*	1.5 ml	Crimp cap vial 11 mm	28.05	30.85
301101-	KH-Vial G 1, clear-BF-FM*	1.5 ml	Screw top vial 9 mm	29.55	32.55
300407-	Micro Insert G30/ls	150 µl	Micro insert 5 mm OD	36.80	40.50
300401-	Micro Insert G30/5 with Polymer foot	150 µl	Micro insert 5 mm OD	65.20	71.75
301407-	Micro Insert G30/ls/6	300 µl	Micro insert 6 mm OD	36.80	40.50
301401-	Micro Insert G30/6 with Polymer foot	250 µl	Micro insert 6 mm OD	65.20	71.75
300104-	Vial G 4, clear	4 ml		36.25	39.90
300106-	Vial G 4, amber	4 ml		39.90	43.90
300015-	Vial R 5, clear	5 ml		46.75	51.45
300025-	Vial R 10, clear	10 ml		52.90	58.20
300040-	Vial R 20, clear	20 ml		76.70	84.35
300050-	Vial R 50-D, clear Glass 3 rd Hydrolytic Class	50 ml		138.35	152.20
300104- Siliconized	Vial G 4, clear (Siliconization) Procedure following of „Siliconization with Dow Corning Medical Materials“, Dow Corning Corp., Midland, USA (1983)	4 ml		103.50 €/pk/100	

**You are interested in silanized or siliconized vials or glassware?
Please request your personal offer!**

Certified Vials & Closures

(Delivery only in combi, consisting of bottle and cap)



Dimensional accuracy and cleanliness are fundamental requirements which you as a user bottles to sample and provide closures for the analysis. You can reach to higher reproducibility and avoid possible sources of error from the start. Therefore, the procurement of certified products, which show the required proof of quality, always important.

We take account of our offer this as one of the leading German supplier of high-quality chromatography accessories and -consumables

„Certified Vials & Closures“

Constant high quality through a comprehensive inspection of incoming goods were and are always part of our own claims.



Combi Set: Short Neck Screw Top Vials with Screw Caps

Our offer includes two levels of certification:

Level „Cert1“:

Detection of dimensional accuracy by an enclosed, batch-specific material certificate.

Level „Cert2“:

As before, but with proof of purity for GC / HPLC analysis by an enclosed, batch-related certificate of analysis.

Short Neck Screw Top Vials with Screw Caps: (minimum purchase: 10 pk.)					
P/N	Description	Type	€/pk/100 at a purchase quantity of:		
			10-49 pk	50-99 pk	+ 100 pk
Appendix	Combi set consists of: →	BF = with lettering field FM = Fill marker	-10	-50	-100
302817-B-Cert1	301101 + 301098-Blue	clear-BF-FM	34.15	32.50	30.95
302817-B-Cert2	301101 + 301098-Blue	clear-BF-FM	42.70	40.65	38.70
302828-B-Cert1	301001 + 301098-Blue	amber-BF-FM	35.25	33.55	31.95
302828-B-Cert2	301001 + 301098-Blue	amber-BF-FM	44.10	41.95	39.95

**You need other certified bottles and caps
from our wide range?
Please ask for our offer!**

Micro Inserts for Vials with Crimp Top, Snap Ring Top and Screw Top

Made of Glass (clear) or Plastics (PE)

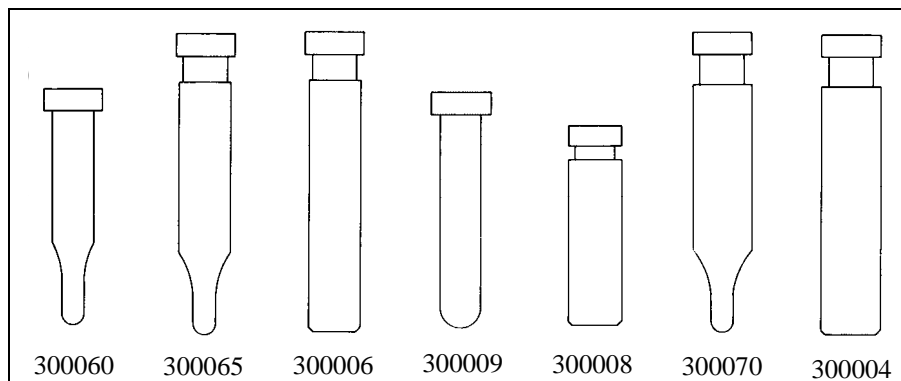
Note: The volume of the micro inserts was measured by a filling height of approximately 90 %!



300401/301401

P/N Appendix →	Type	Head	Length x Ø	Volume/ Glass Type	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
for a neck opening of 5 mm:								
	 300001/007 300002/005	 301005/002 300101/102 300100/103	 301018 300407 300406 300405 300402 300401 300403					
301018	Micro Insert G 27 use with spring S 27 (300420)	10 mm	27x4mm	100 µl/HK1	24.60	23.40	22.25	21.15
300407	Micro Insert G 30ls	15 mm	30x5mm	150 µl/HK1	20.30	19.30	18.35	17.45
300406	Micro Insert G 30s	12 mm	30x5mm	175 µl/HK1	20.30	19.30	18.35	17.45
300405	Micro Insert G 30	9 mm	30x5mm	225 µl/HK1	20.30	19.30	18.35	17.45
300401	Micro Insert G 30/5 with Polymer foot	-	28x5mm	150 µl/HK1	48.70	46.35	44.10	42.00
300403	Micro Insert G 30/5-zyl	flat	30x5mm	260 µl/HK1	20.30	19.30	18.35	17.45
For a neck opening of 6 mm:								
	 301120/128 301131/132	 301100/001/101 304001/002/003	 301406 301407 301401 301403					
301407	Micro Insert G 30ls/6	15 mm	30x6mm	250 µl/HK1	20.30	19.30	18.35	17.45
301406	Micro Insert G 30s/6	12 mm	30x6mm	275 µl/HK1	20.30	19.30	18.35	17.45
301401	Micro Insert G 30/6 with Polymer foot	-	28x6mm	250 µl/HK1	48.70	46.35	44.10	42.00
301403	Micro Insert G 30/6-zyl	flat	30x6mm	350 µl/HK1	20.30	19.30	18.35	17.45
For Top Vials 4 ml (Art.-Nr. 300104/300106)								
300410	Micro Insert G 40	15 mm	40x6mm	400 µl/HK1	24.60	23.40	22.25	21.15
300412	Micro Insert K 35 Both use with spring S 50 (300408)	11 mm	35x6mm	300 µl/PE	13.05	12.40	11.80	11.20
Spring for use with Micro Insert noted above:								
			 300425 300420 300408 300412 300410					
300425	Spring S 20		15x5mm	-	12.75	12.10	11.50	10.95
300420	Spring S 27		35x5mm	-	9.70	9.20	8.75	8.30
300408	Spring S 50		50x7.5 mm	-	9.70	9.20	8.75	8.30

Vials and Crimp Caps: Crimp Top 8 mm



New P/N System for using an EDP equipment.

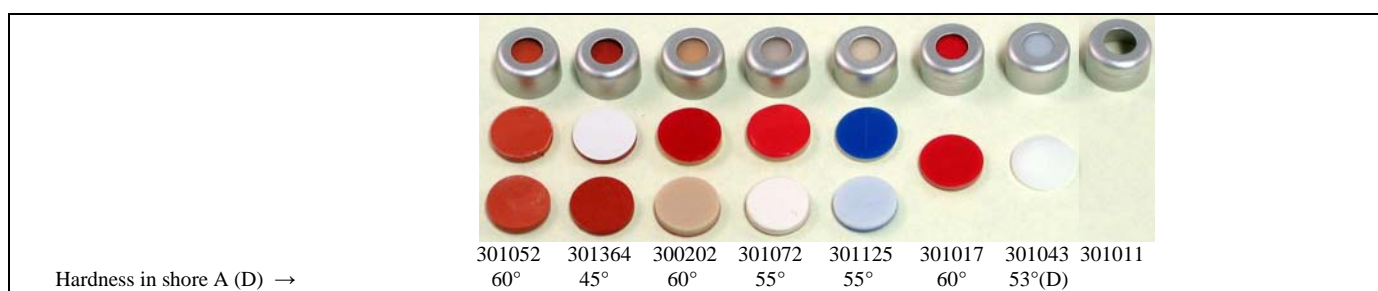
Please complete the product specific P/N from the left column with the appendix in the price scale dependent on the quantity.

e.g.. for 1-9 pk: P/N 300060:
EDP-P/N: 1.300060-01

Glass Vials, pk/100, Glass of 1st Hydrolytic Class according to DIN ISO 719

P/N Appendix	Type →	Vol.	Crimp Top Ø x Height	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
300060	Vial R 03 s, clear	0.3 ml	8 x 3 mm	31.5 x 5.5 mm	19.45	18.50	17.60	16.75
300009	Vial R 08 r, clear	0.3 ml	8 x 3 mm	31.5 x 5.5 mm	19.45	18.50	17.60	16.75
300065	Vial R 07 s, amber	0.6 ml	8 x 3 mm	40.0 x 7.0 mm	19.45	18.50	17.60	16.75
300006	Vial R 07, amber	0.7 ml	8 x 3 mm	40.0 x 7.0 mm	19.45	18.50	17.60	16.75
300008	Vial R 08, clear	0.8 ml	8 x 3 mm	30.0 x 8.2 mm	11.05	10.50	10.00	9.50
301069	Vial R 08, amber	0.8 ml	8 x 3 mm	30.0 x 8.2 mm	13.40	12.75	12.10	11.50
300070	Vial R 1/40 s, clear	0.8 ml	8 x 3 mm	40.0 x 8.1 mm	29.00	27.60	26.25	25.00
300004	Vial R 1.2, clear	1.0 ml	8 x 3 mm	40.0 x 8.0 mm	19.45	18.50	17.60	16.75

Crimp Caps, pk/100, Aluminium Caps with Hole-Ø 4 mm and Seal according Table below, for Crimp Top 8 x 3 mm


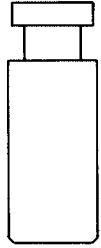
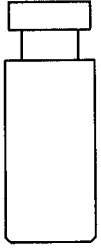
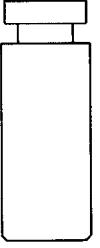
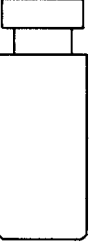





P/N Appendix	Type gs = slitted for HPLC →	with assembled Seal made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
301052	Crimp Cap R 8-1.0	NK/red with TEF/transp., 1.0 mm	9.40	8.95	8.50	8.05
301364	Crimp Cap R 8- red rubber	Red rubber, PTFE/white, 1.0 mm	10.10	9.60	9.10	8.65
300202	Crimp Cap R 8-Sil	Silicone/transp., PTFE/red, 1.5 mm	20.20	19.20	18.25	17.35
301072	Crimp Cap R 8-Sil-white/red	Silicone/white with PTFE/red, 1.3 mm	20.20	19.20	18.25	17.35
301125	Crimp Cap R 8-Sil/gS	Silicone/white, PTFE/blue, 1.0 mm	24.75	23.55	22.40	21.30
301017	Crimp Cap R 8-red	Silicone, double-sided PTFE/red, 1.0 mm	20.20	19.20	18.25	17.35
301043	Crimp Cap R 8-PTFE	PTFE/white, 0.25 mm	8.50	8.05	7.65	7.25
301011	Aluminium Cap R 8-L	→	4.05	3.85	3.65	3.45

Combi Packs, pk/100, Vial and Crimp Cap

P/N Appendix	302701	302705	Combi Pack contains:		€/pk/100	
					1-9 pk -01	10-49 pk -10
302701			Vial R 03 s, clear (300060) +	Crimp Cap R 8-1.0 (301052)	27.45	26.10
302710			Vial R 08 r, clear (300009) +	Crimp Cap R 8-1.0 (301052)	27.45	26.10
302705			Vial R 08, clear (300008) +	Crimp Cap R 8-1.0 (301052)	19.45	18.50
302707			Vial R 07 s, amber (300065) +	Crimp Cap R 8-1.0 (301052)	27.45	26.10
302714			Vial R 1.2, clear (300004) +	Crimp Cap R 8-1.0 (301052)	27.45	26.10

Vials and Crimp Caps: Crimp Top 11 mm

						P/N	Crimp Top	Neck Length	Neck OD
301016	300001 300007	300002 300005	301005 301002	301120 301128	301034	301016	11 x 3.6	3.5	8.5
						300001 300007	11 x 3.0	5.0	8.0
						300002 300005	11 x 3.6	4.5	8.0
						301120 301128	11 x 3.6	3.5	8.5
						301005 301002	11 x 3.0	2.5	7.5
						301034	11 x 3.6	4.0	7.5
all Measures in mm									

						301129 = Micro Vial, Conus volume 15 µl
301129	301038	301538	301538-BR	301430	301430-BR	301038 = Vial with Micro Insert 350 µl, top shape
						301538 = Vial with Micro Insert 350 µl, broad form
						301430 = „Champagne vial“, conic tapered vial with pedestal

Crimp Top Vials made of Glass and/or PP

pk/100, Glass of 1st Hydrolytic Class according to DIN ISO 719 and/or PP = Polypropylene, Neck ID 5/6 mm
Height x OD 32.0 x 11.5 mm (except P/N 301034: 39.0 x 11.5 mm)

P/N	Type BF+FM = Lettering Field + Fill Marker →	Vol.	Crimp Top Ø x Height	€/pk/100 at a purchase quantity:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
Vials with neck ID 5 mm (standard mouth)							
301016	Vial R 1 s, clear	0.9 ml	11 x 3.6 mm	28.85	27.45	26.10	24.85
300001	Vial R 1, clear - 3 mm	1.5 ml	11 x 3.0 mm	10.65	10.10	9.60	9.10
300007	Vial R 1, amber - 3 mm	1.5 ml	11 x 3.0 mm	11.55	11.00	10.45	9.95
300002	Vial R 1, clear - 3.5 mm	1.5 ml	11 x 3.5 mm	10.65	10.10	9.60	9.10
300005	Vial R 1, amber - 3.5 mm	1.5 ml	11 x 3.5 mm	11.55	11.00	10.45	9.95
301005	Vial R 1, clear - 3 mm-KH	1.5 ml	11 x 3.0 mm	10.65	10.10	9.60	9.10
301002	Vial R 1, amber - 3 mm-KH	1.5 ml	11 x 3.0 mm	11.55	11.00	10.45	9.95
301102	Vial R 4/11, clear	4.0 ml	11 x 3.6 mm	20,35	19,35	18,40	17,50
Vials with neck ID 6 mm (width mouth)							
301120	Vial R 1, clear/6 mm	1.5 ml	11 x 3.6 mm	10.10	9.60	9.10	8.65
301486	Vial R 1, amber/6 mm	1.5 ml	11 x 3.6 mm	11.55	11.00	10.45	9.95
301049	Vial R 1, clear/6 mm-BF+FM	1.5 ml	11 x 3.6 mm	10.65	10.10	9.60	9.10
301128	Vial R 1, amber/6 mm-BF+FM	1.5 ml	11 x 3.6 mm	11.55	11.00	10.45	9.95

KH = Vial with short neck (look comparison table right above)

Suitable Micro Inserts see page 92

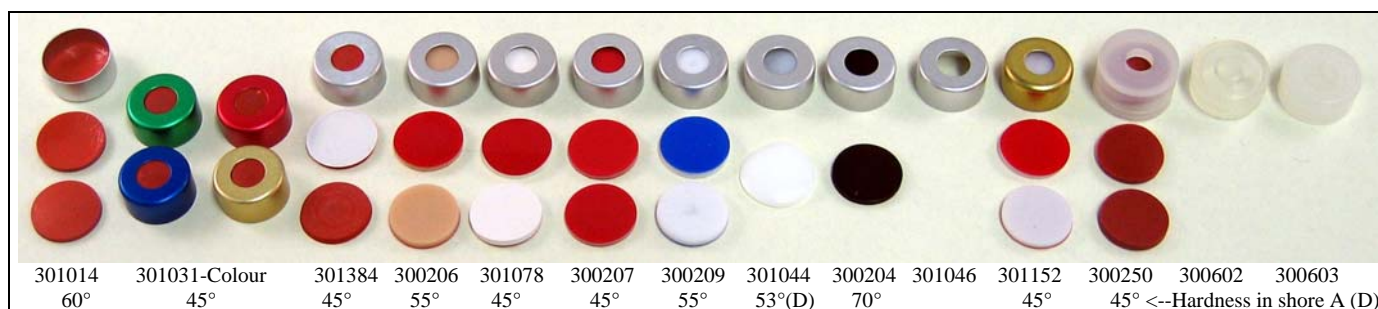
Crimp Top Vials with conical inside part, pk/100

P/N	Type	Crimp Top Ø x Height	Volume/ Glass Type	€/pk/100 at a purchase quantity:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
TIP!							
Appendix →				-01	-10	-50	-100
301129	Micro Vial R 1, clear	32 x 11.5 mm	at least 15µl/HK 1	57.35	54.60	54.60	54.60
301038	Vial R 1-ME, clear	32 x 11.5 mm	325 µl/HK 1	52.90	50.35	50.35	50.35
301038-BF	Vial R 1-ME-BF, clear	32 x 11.5 mm	325 µl/HK 1	77.25	68.30	68.30	68.30
301038-BR	Vial R 1-ME, amber	32 x 11.5 mm	325 µl/HK 1	58.60	55.80	55.80	55.80
301538	Vial R 1-ME, clear	32 x 11.5 mm	350 µl/HK 1	30.35	28.90	28.90	28.90
301538-BR	Vial R 1-ME, amber	32 x 11.5 mm	350 µl/HK 1	31.20	29.70	29.70	29.70
301430	Vial R 1/V, clear	32 x 11.5 mm	1.1 ml	36.00	34.25	34.25	34.25
301430-BR	Vial R 1/V, amber	32 x 11.5 mm	1.1 ml	42.90	40.85	40.85	40.85

Crimp Caps made from Aluminium, magnetic special Alloy and Plastics, pk/100


Aluminium Caps, blank with hole Ø 5.6 mm and sealing disks see table, for crimp 11 x 3 mm and 11 x 3.6 mm

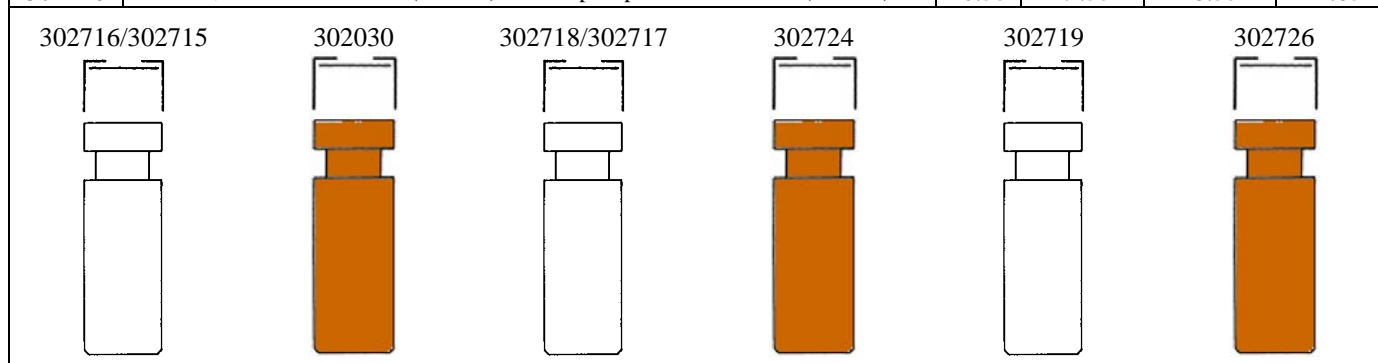
PE Caps R 11-L, hole Ø 4.5 mm with sealing disk, PU and PE caps (use without sealing disk) for crimp 3 mm



P/N	Type	with assembled Seal made of: NK = Natural rubber, BK = Butyl rubber TEF = Tefzel	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
301014	Crimp Cap R 11-1.0-silver	NK/BK/red w.TEF/transparent, 1.0 mm	10.05	9.55	9.05	8.60
301031-GR	Crimp Cap R 11-1.0-green	NK/BK/red w.TEF/transparent, 1.0 mm	14.95	14.20	13.50	12.85
301031-B	Crimp Cap R 11-1.0-blue	NK/BK/red w.TEF/transparent, 1.0 mm	14.95	14.20	13.50	12.85
301031-R	Crimp Cap R 11-1.0-red	NK/BK/red w.TEF/transparent, 1.0 mm	14.95	14.20	13.50	12.85
301031-GO	Crimp Cap R 11-1.0-gold	NK/BK/red w.TEF/transparent, 1.0 mm	14.95	14.20	13.50	12.85
301114	Crimp Cap R 11-1.0/HP	NK/red with TEF/transparent, 1.0 mm	10.05	9.55	9.05	8.60
301079	Crimp Cap R 11-1.3	NK/red with TEF/transparent, 1.3 mm	10.05	9.55	9.05	8.60
301384	Crimp Cap R 11-RG	Red Rubber/PTFE, white, 1.0 mm	11.85	11.25	10.70	10.15
300206	Crimp Cap R 11-Sil	Silicone/transp. with PTFE/red, 1.5 mm	22.45	21.35	20.30	19.30
301078	Crimp Cap R 11-Sil/r-w	Silicone/white with PTFE/red, 1.3 mm	22.45	21.35	20.30	19.30
300207	Crimp Cap R 11-red	Silicone, both sides PTFE/red, 1.0 mm	22.45	21.35	20.30	19.30
300209	Crimp Cap R 11-Sil/ks	Silicone, white with PTFE, blue, 1.5 mm Cross slotted	31.05	29.55	28.10	26.75
301044	Crimp Cap R 11-PTFE	PTFE/white, 0.25 mm	8.40	8.00	7.60	7.20
301487	Crimp Cap R 11-PTF Phthalate free	Aluminium foil 0.1 mm strong with Fluorine plastic-O.Ring Delivery in Glass vials	32.70	31.10	31.10	31.10
301152	magn. Crimp Cap R 11-Sil red/white	Silicone/white with PTFE/red, 1.3 mm	39.35	37.45	35.65	33.95
300250	PE-Cap R 11-L	NK/red with TEF/transparent, 1.3 mm	14.20	13.50	12.85	12.20
300602	PU-Cap R 11	without, with thin stitch area	21.30	20.25	19.25	18.30
300603	PE-Cap R 11 with Star	without, with thin stitch area	17.85	17.00	16.15	15.35

Combi Packs, pk/100 Vial and Crimp Cap (Individual products see pages 80+81)

P/N	Appendix	 Our Vial Combi Pack: especially low-priced! Combi Pack contains:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+100 pk -100
302716	Vial R 1, clear-3 mm	(300001) + Crimp Cap R 11-1.0 (301014)	19.70	18.70	17.75	16.85
302718	Vial R 1, clear-3.6 mm	(300002) + Crimp Cap R 11-1.0 (301014)	19.70	18.70	17.75	16.85
302724	Vial R 1, amber-3.6 mm	(300005) + Crimp Cap R 11-1.0 (301014)	20.55	19.55	18.55	17.65
302717	Vial R 1, clear-3.6 mm	(300002) + Crimp Cap R 11-1.3 (301079)	19.70	18.70	17.75	16.85
302719	Vial R 1, clear/6 mm	(301120) + Crimp Cap R 11-1.0/HP (301114)	19.70	18.70	17.75	16.85
302726	Vial R 1, amber/6 mm	(301128) + Crimp Cap R 11-1.0/HP (301114)	20.55	19.55	18.55	17.65



Vials and Caps: Snap Ring 11 mm

Snap Ring Vials made of Glass or PP, Pg. a 100 St.

Glass of 1st Hydrolytic Class according to DIN ISO 719, neck opening 6.2 mm
 Height x OD = 32.0 x 11.5 mm
 partial with lettering field (BF)
 Polypropylene (PP) type with conical inside part

- useful for Autosampler
- closure with Snap Ring Cap **and/or** Crimp Cap possible
 when using the Snap Ring Cap you **do not need** a Crimper



P/N Appendix	Type BF = lettering field →	Vol.	Crimp Top Ø x Height	€/pk/100 at a purchase quantity of:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
304001	SR Vial SR 1, clear-BF	1,5 ml	11 x 3,6 mm	15.25	14.50	13.80	13.10
304002	SR Vial SR 1, clear	1,5 ml	11 x 3,6 mm	13.90	13.20	12.55	11.95
304003	SR Vial SR 1, amber-BF	1,5 ml	11 x 3,6 mm	15.95	15.15	14.40	13.70
301038-SR	SR- Vial SR 1, clear-ME	350 µl	11 x 3,6 mm	41.40	39.40	37.50	35.70
301489-SR	Total SR-Micro Vial SR 1	1,5 ml	11 x 3,6 mm	123.00	117.00	117.00	117.00
304601	SR Vial SR 03-conical-PP	0,3 ml	11 x 3,6 mm	20.55	19.55	18.60	17.70
301353-P	SR Vial SR 1-PP	0,7 ml	11 x 3,6 mm	18.35	17.45	16.60	15.80

Suitable micro inserts 6 mm see page 92

Snap Ring Caps SR 11 made of plastics, pk/100

Made of transparent Plastics (PE) with hole Ø 5.6 mm and inserted Sealing Disk, for SR Top 11 x 3.6 mm



304205-B 304206 304202 304207 304208 304210

Hardness in shore A (D) → 60° 45° 45° 45° 53°(D) 55°

P/N Appendix	Type ks = cross slotted →	inserted Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
304200	SR-Cap SR 11-oD	Insert without seal	8.15	7.75	7.35	7.00
304205	SR-Cap SR 11-L/1.0	NK/red with TEF/transparent, 1.0 mm	16.45	15.65	14.90	14.15
304205-B	SR-Cap SR 11-L-Blue/1.0	NK/red with TEF/transparent, 1.0 mm	18.50	17.60	16.75	15.95
304206	SR-Kappe SR 11-L-Red Rubber	Red Rubber/PTFE, white, 1.0 mm	19.25	18.30	17.40	16.55
304202	SR-Cap SR 11-L/Sil	Silicone/white with PTFE/red, 1.0 mm	21.50	20.45	19.45	18.50
304208	SR-Cap SR 11-L/PTFE	PTFE/white, 0.25 mm	17.20	16.35	15.55	14.80
304210	SR-Cap SR 11-L/Sil-ks	Silicone/white with PTFE/blue, 1.0 mm cross slotted for CE	36.55	34.80	33.10	31.50

Flat Bottom Vials 1 to 4 ml

including Vial S 1-W for Waters WISP 96-trial

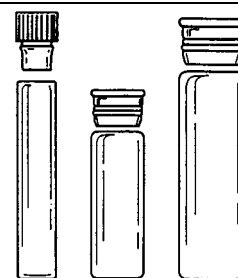
The inexpensive alternative for Autosampler vials

pk/100 Vial including PE Stopper, color natural

Glass of 1st Hydrolytic Class according to DIN ISO 719

P/N 301203 made of PP

Delivery complete, including PE Stopper with star-shaped
 marked, thin piercing point.



P/N Appendix	Type →	Vol.	Crimp Top Ø x Height	€/pk/100 at a purchase quantity of:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300080	Vial S 1-Alcott, clear	0.8 ml	35.0 x 7.8 mm	19.65	18.70	17.80	16.95
300081	Vial S 1-Alcott, amber	0.8 ml	35.0 x 7.8 mm	22.75	21.65	20.60	19.60
300003	Vial S 1-W, clear	1 ml	40.0 x 8.2 mm	16.70	15.90	15.10	14.35
301203	Vial S 1-W/PP	1 ml	40.0 x 8.2 mm	28.85	27.45	26.10	24.85
300083	Vial S 1-W, amber	1 ml	40.0 x 8.2 mm	17.40	16.55	15.75	15.00
300090	Vial S 2-W, clear	2 ml	31.5 x 11.5 mm	16.70	15.90	15.10	14.35
300091	Vial S 2-W, amber	2 ml	31.5 x 11.5 mm	18.15	17.25	16.40	15.60
300095	Vial S 4-W, clear	4 ml	44.5 x 14.5 mm	18.10	17.20	16.35	15.55
300096	Vial S 4-W, amber	4 ml	44.5 x 14.5 mm	18.75	17.85	17.00	16.15

Vials and Crimp Caps: Crimp Top 13mm



Glass Vials, pk./100, Glass of 1st Hydrolytic Class according to DIN ISO 719

P/N Appendix	Type →	Volume	Crimp Top Ø x Height	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301341	Vial R 1/13, clear	1.0 ml	13 x 3.6 mm	20.0 x 14 mm	11.95	11.35	10.80	10.25
300010	Vial R 2, clear	2.5 ml	13 x 3.6 mm	32.0 x 16 mm	17.40	16.55	15.75	15.00
300012	Vial R 2-S, clear	2.0 ml	13 x 3.6 mm	43.5 x 11 mm	19.55	18.60	17.60	16.85

Crimp Caps, pk/100, for Crimp Top 13 x 3.6 mm

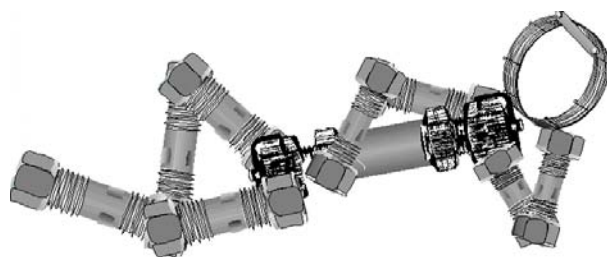


P/N Appendix	Type →	Description	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300210	Crimp Cap R 13	Aluminium Cap with center tear off, seal of BK/PTFE, 2.0 mm	36.75	35.00	33.30	31.70
300215	Crimp Cap R 13-L	Aluminium Cap with hole, 6 mm, seal of BK/PTFE, 2.0 mm	36.75	35.00	33.30	31.70
301327	Crimp Cap R 13-L/BK-1.3	Aluminium Cap, green, with hole, 6 mm, seal of BK, red/PTFE, blue-grey 1.3 mm	25.50	24.25	23.05	21.95
300217	Crimp Cap R 13-S	Aluminium cap, green with hole 6 mm, seal of BK/ both sides PTFE, 1.5 mm	25.50	24.25	23.05	21.95

Combi Packs, pk/100, Vial with Crimp Cap

P/N Appendix	Combi Pack contains:	€/pk at:	
		1-9 pk -01	10-49 pk -10
300721	Vial R 2-S, clear (300012) + Crimp Cap R 13-S (300217)	42.80	40.75

Vials and Crimp Caps: Crimp Top 20 mm



300015 300020	300025 300030	300040	300038	300043 300043-BR	300042 301024

Glass Vials, pk/100, Glass of 1st Hydrolytic Class according to DIN ISO 719 (HC I + HC III) Crimp Top-Ø x Height: 20 x 3,6 mm

P/N Appendix	Type →	Vol. ml	Crimp Top Ø x Height	€/pk/100 at a purchase quantity of:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300015	Vial R 5, clear	5	37.5 x 20.5 mm	18.05	17.15	16.30	15.50
300020	Vial R 5, amber	5	37.5 x 20.5 mm	20.15	19.15	18.20	17.30
300016	Vial R 5/HS, clear*	5	38.5 x 22.0 mm	18.05	17.15	16.30	15.50
300025	Vial R 10, clear	10	54.5 x 20.5 mm	20.15	19.15	18.20	17.30
300030	Vial R 10, amber	10	54.5 x 20.5 mm	21.20	20.15	19.15	18.20
300035	Vial R 10-D, clear	10	45.0 x 24.0 mm	20.85	19.85	18.90	18.00
300036	Vial R 10/HS-DANI, clear*	10	45.5 x 22.0 mm	20.85	19.85	18.90	18.00
300037	Vial R 10/HS-CE/HP, clear*	10	46.0 x 22.75 mm	20.85	19.85	18.90	18.00
300038	Vial R 10/HS-CP/CTC **	10	46.0 x 22.5 mm	20.85	19.85	18.90	18.00
300041	Vial R 20/HS-DANI, clear*	20	75.0 x 22.0 mm	21.70	20.65	19.65	18.70
300046	Vial R 20/HS-Agilent, clear Long neck min. 6.5 mm	20	75.0 x 22.5 mm	23.70	22.55	21.45	20.40
300040	Vial R 20, clear	20	75.5 x 22.75 mm	21.70	20.65	19.65	18.70
300042	Vial R 20/HS, clear*	20	75.5 x 22.75 mm	21.70	20.65	19.65	18.70
301024	Vial R 20/HS, amber*	20	75.5 x 22.75 mm	23.75	22.60	21.50	20.45
300043	Vial R 20/HS-PE, clear**	20	75.5 x 22.75 mm	21.70	20.65	19.65	18.70
300043-BR	Vial R 20/HS-PE, amber**	20	75.5 x 22.75 mm	23.75	22.60	21.50	20.45
300044	Vial R 20/HS-CTC, clear*	20	75.5 x 22.5 mm	21.70	20.65	19.65	18.70
300045	Vial R 20/HS-Z, clear	20	75.5 x 23.0 mm	21.70	20.65	19.65	18.70
300048	Vial R 25, clear	25	65.0 x 30.0 mm	34.20	32.55	31.00	29.50
300051	Vial R 50-h, clear	50	101 x 31.0 mm	41.35	39.35	37.45	35.65
300050	Vial R 50-D, clear (HC III)	50	73.0 x 42.0 mm	39.35	37.45	35.65	33.95
300055	Vial R 100-D, clear (HC III)	100	95.0 x 52.0 mm	40.55	38.60	36.75	35.00

- D = Vial according to DIN 58366 part 1

* /HS = Vials with rounded bottom edges for Head Space Analysis

**/HS = Vials with rounded bottom edges and conic crimp








Crimp Caps 20 mm





Pk/100, for Crimp Top 20 x 3.6 mm






Deliverable Caps:

						
Aluminium Caps hole 10 mm 300219	Aluminium Caps middle tear-off 301057	Aluminium Caps tear-off 301015	Head Space P=3.0+- 0.5 bar hole 8 mm 301059	magn. Ring Cap hole 7.5 mm 301213	magn. Cap, gold hole 8 mm 301184	magn. Cap, silver hole 6 mm 301045

Deliverable sealing disks (all sealing disks 3 mm thick):

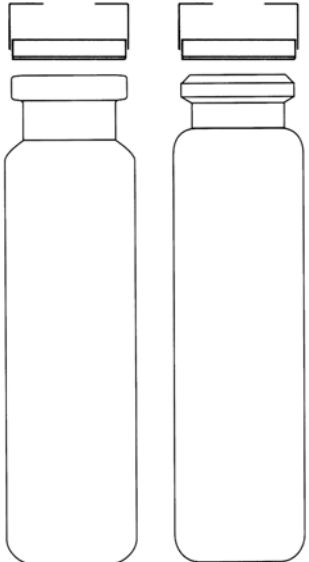
						
Pharmafix Butyl/PTFE 301042	Form disk Butyl/PTFE 301020	Butyl, red/ PTFE, blue 301144	Butyl rubber stopper light grey 300260	Silicone, blue/ PTFE, white 301023	Silicone, creamy/ PTFE, white 301087	Silicone, white/ Aluminium foil 301051
50 shore A	50 shore A	55 shore A	45 shore A	45 shore A	40 shore A	50 shore A

P/N	Description	Crimp Cap contains:		€/pk/100 at a purchase quantity of:			
		P/N cap	P/N sealing disk	1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300225	Crimp Cap R 20-L		301042	36.50	34.75	33.05	31.45
300226	Crimp Cap R 20-L/CS		301020	27.60	26.25	25.00	23.80
300223	Crimp Cap R 20-L/BK		301144	27.30	26.00	24.75	23.55
300242	Crimp Cap R 20B-L/HS-hg		300260	11.85	11.25	10.70	10.15
300227	Crimp Cap R 20-L/Sil		301023	45.60	43.40	41.30	39.30
301086	Crimp Cap R 20-L/Sil-HS		301087	30.60	29.10	27.70	26.35
300220	Crimp Cap R 20		301042	36.50	34.75	33.05	31.45
301199	Crimp Cap R 20-CS		301020	31.05	29.55	28.10	26.75
300222	Crimp Cap R 20-BK		301144	27.30	26.00	24.75	23.55
301210	Crimp Cap R 20-Sil		301023	48.50	46.15	43.95	41.85
301220	Crimp Cap R 20/Sil-HS		301087	30.60	29.10	27.70	26.35
301189	Crimp Cap R 20-AS		301051	60.85	57.95	55.15	52.50
300230	Crimp Cap R 20-E		301042	36.50	34.75	33.05	31.45
301257	Crimp Cap R 20-E/CS		301020	27.45	26.10	24.85	23.65
301230	Crimp Cap R 20-E/Sil-HS		301087	30.60	29.10	27.70	26.35
301066	Crimp Cap R 20-L-S		301042	38.00	36.15	34.40	32.75
301048	Crimp Cap R 20-L-S/CS		301020	30.10	28.65	27.25	25.95
301157	Crimp Cap R 20-L-S/Sil		301023	48.05	45.75	43.55	41.45
301248	Crimp Cap R 20-L-S/Sil-HS		301087	34.50	32.85	31.25	29.75
301047	Crimp Cap R 20-L-S/AS		301051	64.35	61.25	58.30	55.50
301259	magnetic Ring-Crimp Cap R 20-L/CS		301020	38.60	36.75	35.00	33.30
301281	magnetic Ring-Crimp Cap R 20-L/Sil		301023	51.10	48.65	46.30	44.05
301214	magnetic Ring-Crimp Cap R 20-L/Sil-HS		301087	41.55	39.55	37.65	35.85

P/N Appendix	Description →	Crimp Cap contains:		€/pk/100 at a purchase quantity of:			
		P/N cap	P/N sealing disk	1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301185	magnetic Crimp cap R 20-L/8 mm		301042	41.10	39.10	37.20	35.40
301188	magnetic Crimp cap R 20-L/CS/8 mm		301020	34.15	32.50	30.95	29.45
301228	magnetic Crimp cap R 20-L/Sil-CTC		301023	51.10	48.65	46.30	44.05
301218	magnetic Crimp cap R 20-L/Sil-HS/8 mm		301087	41.55	39.55	37.65	35.85
301270	magnetic Crimp cap R 20-L/AS/8 mm		301051	72.00	68.55	65.25	62.10
301058	magnetic Crimp cap R 20-L		301042	41.85	39.85	37.95	36.10
301088	magnetic Crimp cap R 20-L/CS		301020	34.45	32.80	31.20	29.70
300229	magnetic Crimp cap R 20-L/BK		301144	36.15	34.40	32.75	31.15
301222	magnetic Crimp cap R 20-L/Sil-HS		301087	41.55	39.55	37.65	35.85
301088-G	magnetic Crimp cap R 20-L/CS/5 mm		301020	34.20	32.55	31.00	29.50
300228	magnetic Crimp cap R 20-L/Sil/5 mm		301023	51.10	48.65	46.30	44.05
300219	Aluminium cap R 20-L with hole-Ø 10 mm, without sealing disk			4.20	4.00	3.80	3.60
300260	Butyl Rubber Stopper R 20 BK, light grey, 45 Shore, for Head Space			7.65	7.25	6.90	6.55
300255	PE Cap R 20-L PE Cap with hole-Ø 4.5 mm, Sealing disk NK, red/PTFE(blue), 1.3 mm 50 Shore		301008	19.25	18.30	17.40	16.55
300256 TIP!	PE-Cape R 20-L/1.8 mm Sealing disk NK, red/PTFE(blue), 1.8 mm For tight fit of the PE Cap!		301328	19.35	18.40	17.50	16.65

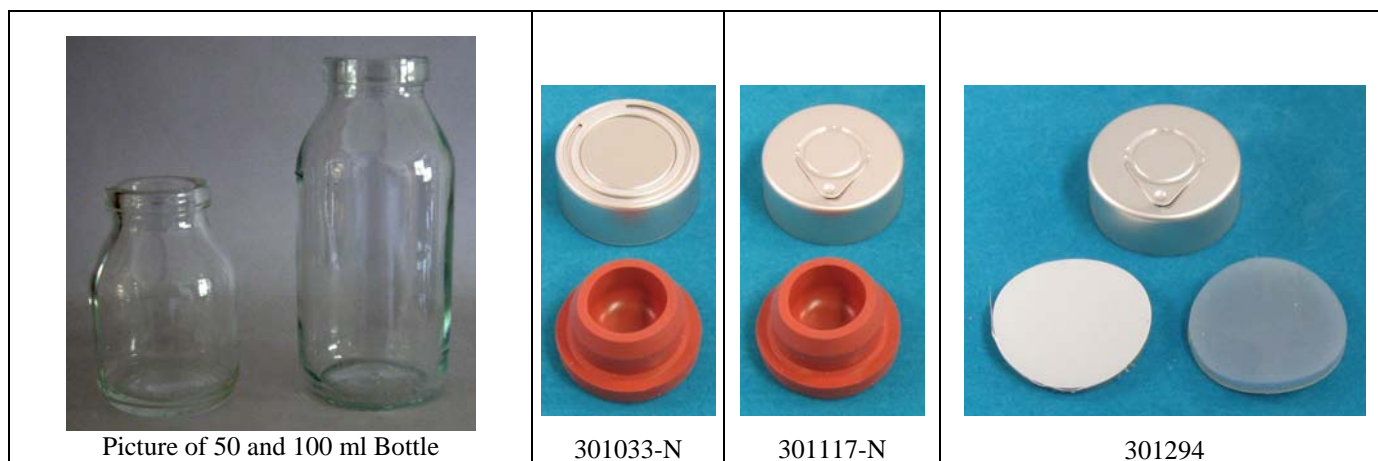
Head Space Kombi Packs, 20 ml, 100/pk Vial with Crimp cap



P/N Appendix	Combi Pack contains:	€/pk			
		1-9 pk -01	10-49 pk -10		
	300760	Vial R 20/HS, clear Crimp cap R 20B-L/HS-hg	(300042) + (300242)	31.90	30.35
	300761	Vial R 20/HS, clear Crimp cap R 20-L/CS	(300042) + (300226)	46.85	44.60
	300762	Vial R 20/HS, clear Crimp cap R 20-L-S/AS	(300042) + (301047)	81.75	77.85
	300767	Vial R 20/HS, clear Crimp cap R 20-L/Sil-HS	(300042) + (301086)	49.70	47.30
	300763	Vial R 20/HS, clear Steel cap R 20-L/Sil	(300042) + (300228)	69.20	65.85
	300757	Vial R 20/HS-PE, clear Crimp cap R 20-L/Sil-HS	(300043) + (301086)	49.70	47.30
	300759	Vial R 20/HS-PE, klar magn. Crimp cap R 20-L/Sil/5mm	(300043) + (300228)	69.20	65.85

Crimp Top Bottles and Crimp Caps R 32

Bottles made from Glass of 1st Hydrolytic Class according to DIN ISO 719 (Borosilicate glass)



Picture of 50 and 100 ml Bottle

301033-N

301117-N

301294

P/N Appendix	Description →	Volume ml	Vial Height x OD	€/pk at a purchase quantity of:		
				pc./pk	1-9 pk -01	+ 10 pk -10
01342121	Vial R 32-50, clear	50	68 x 46 mm	108	138.95	132.30
01342110	Vial R 32-100, clear	100	104 x 49 mm	104	121.60	115.80
01342130	Vial R 32-250, clear	250	136 x 66 mm	48	89.80	85.50
01342100	Vial R 32-500, clear	500	177 x 78 mm	35	85.70	81.60
01342150	Vial R 32-1000, clear	1000	230 x 95 mm	22	95.55	91.00
301033-N	Crimp Cap R 32-E/C	Aluminium cap tear-off + stopper of chloro butyl rubber, red		49.85	47.45	49.85
301117-N	Crimp Cap R 32-M/C	Aluminium cap middle tear-off + stopper of chloro butyl rubber, red		49.85	47.45	49.85
301294	Crimp Cap R 32-M/Sil	Aluminium caps middle tear-off + seal Silicone/PTFE, 3 mm		231.55	220.50	231.55
301429	Butyl Rubber Stopper R 32	Stopper of chloro butyl rubber, red		31.30	29.80	31.30

Snap Cap Vials 5 – 50 ml

Glass of 3rd Hydrolytic Class according to DIN ISO 719, pk/100, including PE Snap Cap, transparent



301080

301081

301083

301090

301082

301091

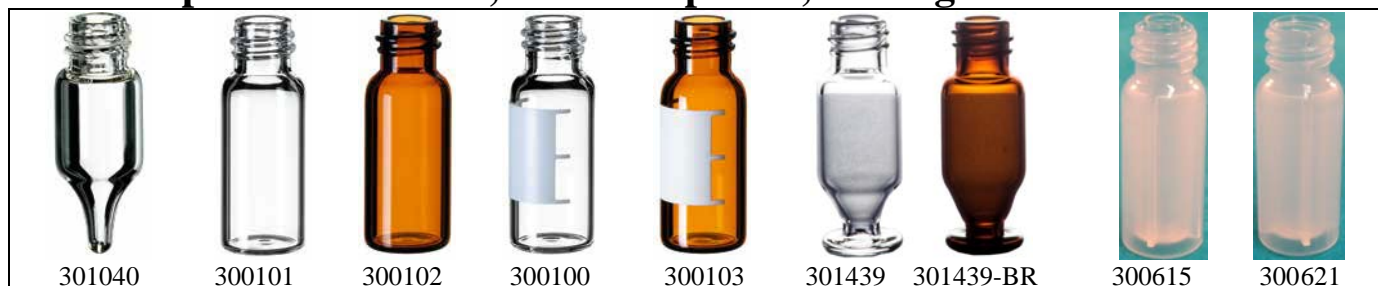
301109

P/N Appendix	Type →	Vol.	Size Ø x Height	Size Snap Cap	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301080	Snap Cap Vial SD 5	5 ml	40 x 20 mm	S 18	12.95	12.30	11.70	11.10
301081	Snap Cap Vial SD 10	10 ml	50 x 22 mm	S 18	13.65	13.00	12.35	11.75
301083	Snap Cap Vial SD 15	15 ml	48 x 26 mm	S 22	17.75	16.90	16.05	15.25
301090	Snap Cap Vial SD 20	20 ml	55 x 26 mm	S 22	26.65	25.35	24.10	22.95
301082	Snap Cap Vial SD 25	25 ml	65 x 26 mm	S 22	18.50	17.60	16.75	15.95
301091	Snap Cap Vial SD 40	40 ml	80 x 30 mm	S 28	36.35	34.60	32.95	31.35
301109	Snap Cap Vial SD 50	50 ml	100 x 30 mm	S 28	34.80	33.10	31.50	30.00

Thread 8 mm (N 8, 8-425)



Screw Top Vials 0.3 - 1 ml, Screw Caps G 8, Sealing Disks G 8



Screw Top Vials, made of Glass, PP or TP, pk/100

Glass of 1st Hydrolytic Class according to DIN ISO 719, PP = Polypropylene, TP = Thermoplastic with Glass Insert

P/N Appendix	Type BF+FM = Lettering Field + Fill Marker →	Vol.	Vial Height x OD	€/pk/100 at a purchase quantity of:			
				1-9 pk	10-49 pk	50-99 pk	+ 100 pk
301040	Vial G 1s, clear	0.8 ml	32.0 x 11.5 mm	28.95	27.55	26.20	24.95
301041	Vial G 1s, amber	0.8 ml	32.0 x 11.5 mm	37.80	36.00	34.25	32.60
300101	Vial G 1, clear	1.5 ml	32.0 x 11.5 mm	11.55	11.00	10.45	9.95
300100	Vial G 1, amber-BF+FM	1.5 ml	32.0 x 11.5 mm	12.75	12.10	11.50	10.95
300102	Vial G 1, amber	1.5 ml	32.0 x 11.5 mm	12.75	12.10	11.50	10.95
300103	Vial G 1, amber-BF+FM	1.5 ml	32.0 x 11.5 mm	14.25	13.55	12.90	12.25
301439	Vial G 1/V, clae	1,1 ml	32,0 x 11,5 mm	43.30	41.20	39.20	37.30
301439-BR	Vial G 1/V, amber	1,1 ml	32,0 x 11,5 mm	46.15	43.95	41.85	39.85
300615	TP-Vial G 03, conic*	0,3 ml	32,5 x 11,5 mm	175.35	167.00	-	-
300621	Vial G 1-PP	0,5 ml	32,0 x 11,5 mm	39.30	37.40	35.60	33.90

* Use preferably with Screw cap G 8-L/resin

Suitable micro inserts see page 92

Screw Caps G 8 for Screw Top Vials, pk/100

P/N Appendix	Type →	Material	Hole-Ø mm/ color	€/pk/100 at a purchase quantity of:			
				1-9 pk	10-49 pk	50-99 pk	+ 100 pk
300301	Screw cap G 8	PP	without/black	4.85	4.60	4.35	4.10
300305	Screw cap G 8-L	PP	5.5 mm/black	4.85	4.60	4.35	4.10
300304	Screw cap G 8-L(w)	PP	5.5 mm/white	6.60	6.25	5.95	5.65
300305	Screw cap G 8-L/resin	Resin	5.5 mm/black	6.60	6.25	5.95	5.65

Sealing Disks G 8 for Screw Caps G 8, pk/100



301093 60 shore A 301105 60 shore A 300353 55 shore A 301351 45 shore A 300351 53 shore D 300352 55 shore A 301071 45 shore A 301021 45 shore A 300354 45 shore A

P/N Appendix	Type →	Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk	10-49 pk	50-99 pk	+ 100 pk
301093	Sealing disk G 8-1.0	NK/red with TEF/transparent, 1.0 mm	11.80	11.20	10.65	10.10
301105	Sealing disk G 8-1.3	NK/red with TEF/transparent, 1.3 mm	11.80	11.20	10.65	10.10
300353	Sealing disk G 8	BK/red with PTFE/blue, 1.0 mm	11.80	11.20	10.65	10.10
301351	Sealing disk G 8- "red rubber/PTFE-white"	Red rubber with PTFE, white, 1.0 mm Analogue Agilent "Red Rubber"	11.80	11.20	10.65	10.10
300351	Sealing disk G 8-PTFE	PTFE/white, 0.2 mm	4.85	4.60	4.35	4.10
300352	Sealing disk G 8-Sil	Silicone/transp. with PTFE/red, 1.5 mm	17.80	16.95	16.10	15.30
301071	Sealing disk G 8-Sil/red-white	Silicone/white with PTFE/red, 1.3 mm	17.80	16.95	16.10	15.30
301021	Sealing disk G 8-red	Silicone/creamy, both sides PTFE/red, 1.0 mm	17.80	16.95	16.10	15.30
300354	Sealing disk G 8-Sil/gS	Silicone/white with PTFE/blue, 0.8 mm slitted for Merck-Hitachi	19.10	18.15	17.25	16.40



Save the annoying strapping of the Seals .

Our service for you:

Screw Caps with inserted Seals !

Screw Caps G 8 with inserted Seal G 8, pk/100

P/N Appendix	Screw cap →	P/N	Sealing Disk P/N	€pk/100 at a purchase quantity of:				
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100	
301169	Screw Cap G 8	300301	Sealing Disk G 8-1.3	301105	15.40	14.65	13.95	13.25
301123	Screw Cap G 8-L	300305	Sealing Disk G 8-1.3	301105	15.40	14.65	13.95	13.25
301147-L	Screw Cap G 8-L	300305	Sealing Disk G 8-1.4	301383	15.40	14.65	13.95	13.25
301332	Screw Cap G 8-L	300305	Sealing Disk G 8- "Red rubber/PTFE, white"	301351	15.40	14.65	13.95	13.25
301061	Screw Cap G 8-L	300305	Sealing Disk G 8-Sil/red-white	301071	25.40	24.15	23.00	21.90
301260	Screw Cap G 8-L	300305	Sealing Disk G 8-Sil/gS	301354	24.65	23.45	22.30	21.20

Are you looking for another combination screw cap / sealing disk ?

No problem, please ask for the combination you want; with pleasure we submit you an offer.

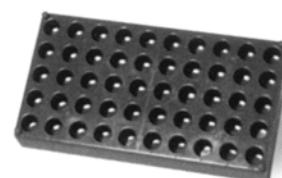
Combi Packs G 1, clear and amber, pk/100

Screw Top Vials with Screw Caps and Sealing Disks, not assembled

	P/N Appendix	Combi Pack contains: →	€pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
	302780	Vial G 1, clear (300101) Screw Cap G 8-L (300305) Sealing Disk G 8-1.0 (301093)	26.80	25.50	24.20	22.95
	302780 - Resin	Vial G 1, clear (300101) Screw Cap G 8-L/Resin (303305) Sealing Disk G 8-1.0 (301093)	28.50	27.05	25.70	24.45
	302785	Vial G 1, clear (300101) Screw Cap G 8-L (300305) Sealing Disk G 8-1.3 (301105)	26.80	25.50	24.20	22.95
	302795	Vial G 1, amber (300102) Screw Cap G 8-L (300305) Sealing Disk G 8-1.0 (301093)	27.95	26.55	25.20	23.90
	302800	Vial G 1 amber (300102) Screw Cap G 8-L (300305) Sealing Disk G 8-1.3 (301105)	27.95	26.55	25.20	23.90

	P/N	Description	€Box
	198450	Complete offer:	
	198450-01	• 50 ea. Screw Top Vials G 1, clear (300101)	25.80
	198450-05	• 50 ea. Screw Caps G 8-L (300305)	24.55
	198450-10	• 50 ea. Sealing Disks G 8 (300353) mounted and stored in Container F1 (198100)	23.35
	198455	Complete offer:	
	198455-01	• 50 ea. Screw Top Vials G 1. amber (300102)	25.80
	198455-05	• 50 ea. Screw Caps G 8-L (300305)	24.55
	198455-10	• 50 ea. Sealing Disks G 8 (300353) mounted and stored in Container F1 (198100)	23.35

More Containers and Vial Racks see page 113 and 115.



Thread 9 mm (N 9, 9-425) Short Neck Screw Top Vials



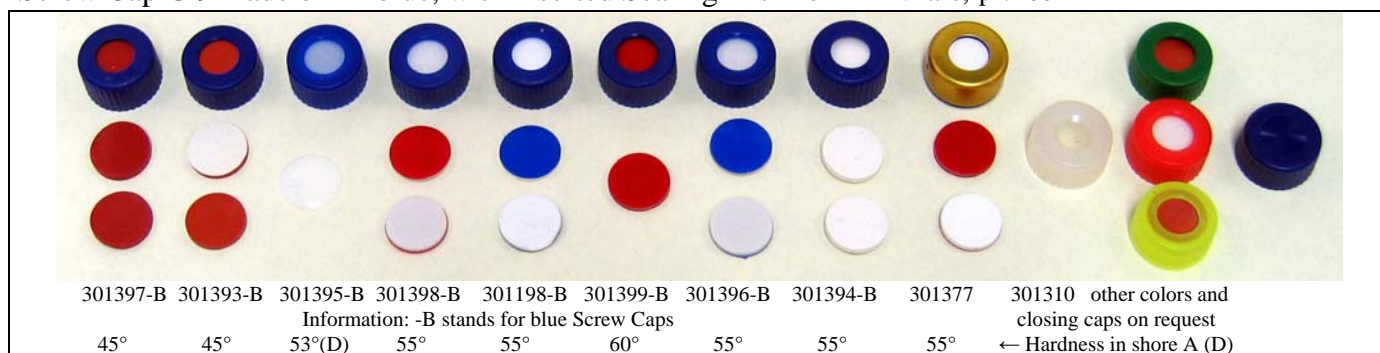
Short Neck Screw Top Vials, made of Glass, pk/100

Glass of 1st Hydrolytic Class according to DIN ISO 719 or made of Polypropylene (PP)

P/N Appendix	Type BF = with lettering field FM = Fill marker 0.5-1-1.5 ml	Vol.	Thread	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk	10-49 pk	50-99 pk	+ 100 pk
	→				-01	-10	-50	-100
301100	KH-Vial G 1, clear	1.5 ml	9 mm	32.0 x 11.5 mm	11.90	11.30	10.75	10.20
301100-BR	KH-Vial G 1, amber	1.5 ml	9 mm	32.0 x 11.5 mm	12.80	12.15	11.55	11.00
301101	KH-Vial G 1-BF+FM, clear	1.5 ml	9 mm	32.0 x 11.5 mm	13.05	12.40	11.80	11.20
301001	KH-Vial G 1-BF+FM, amber	1.5 ml	9 mm	32.0 x 11.5 mm	14.25	13.55	12.90	12.25
301432	KH-Vial G 1/V, clear	1.1 ml	9 mm	32.0 x 11.5 mm	42.65	40.60	38.65	36.80
301432-BR	KH-Vial G 1/V, amber	1.1 ml	9 mm	32.0 x 11.5 mm	44.95	42.80	40.75	38.80
301130	Mikro-KH-Vial G 1, clear from 15 µl volume	1.1 ml	9 mm	32.0 x 11.5 mm	64.85	61.75	58.80	56.00
301489	Total-KH-Micro-Vial G1, clear	0.9 ml	9 mm	32.0 x 11.5 mm	135.45	129.00	122.85	117.00
301275	KH-Vial G 1-ME, clear	0.3 ml	9 mm	32.0 x 11.5 mm	33.50	31.90	30.35	28.90
301275-BR	KH-Vial G 1-ME, amber	0.3 ml	9 mm	32.0 x 11.5 mm	34.45	32.80	31.20	29.70
301313	KH-Vial G 1.5-PP-FM	1.5 ml	9 mm	32.0 x 11.5 mm	16.45	15.65	14.90	14.15
301311	KH-Vial G 07-PP	0.7 ml	9 mm	32.0 x 11.5 mm	15.20	14.45	13.75	13.05
304600	KH-Vial G 03-PP	0.3 ml	9 mm	32.0 x 11.5 mm	13.90	13.20	12.55	11.95
301247	KH-Vial TopSert G 9-0.2 TPX-Vial with glass micro insert	0.2 ml	9 mm	32.0 x 11.5 mm	49.45	47.05	44.80	42.65

Suitable micro inserts 6 mm see page 92

Screw Cap G 9 made of PP blue, with inserted Sealing Disk for KH Vials, pk/100



301397-B 301393-B 301395-B 301398-B 301198-B 301399-B 301396-B 301394-B 301377 301310 other colors and closing caps on request
Information: -B stands for blue Screw Caps
← Hardness in shore A (D)

P/N Appendix	Type -Blue = Screw Cap Blue	Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk	10-49 pk	50-99 pk	+ 100 pk
	→		-01	-10	-50	-100
301397-Blau	Screw Cap G 9-L-Blue /1,0	NK/red - TEF/transp, 1.0mm	13.10	12.45	11.85	11.25
301393-Blau	Screw Cap G 9-L-Blue/Red Rubber	Red Rubber - PTFE, white, 1.0	14.25	13.55	12.90	12.25
301395-Blau	Screw Cap G 9-L-Blue/PTFE-CS	PTFE, white, 0.25 mm	12.75	12.10	11.50	10.95
301398-Blau	Screw Cap G 9-L-Blue /Sil	Silicone/white - PTFE/red, 1.0mm	18.15	17.25	16.40	15.60
301099-Blau	Screw Cap G 9-L-Blue/red	Silicone/white both sides PTFE/red, 1.0 mm	28.45	27.05	25.75	24.50
301396-Blau	Screw Cap G 9-L-Blue/Sil, gs-CS	Silicone/white - PTFE/blue, 1.0 mm, slitted	24.75	23.55	22.40	21.30
301394-Blau 301394-B/gs	For Analytic of perfluorinated tensides Screw Cap G 9-L-Blau/Sil-PE Screw Cap G 9-L-Blau/Sil-PE,gs	Silicone/white - PE/transparent. 1.0 mm, free of fluoride dito, however slit	27.85 28.15	26.50 26.80	25.20 25.50	24.00 24.25
301377	Screw Cap G 9-L-Blue/Sil, magn.	Silicone/white - PTFE/red, 1.0mm	39.10	37.20	35.40	33.70

Thread 9 mm (N 9) Continue

Screw Cap G 9 made of PP blue, with inserted Sealing Disk for KH Vials, pk/100

P/N Appendix	Type →	Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301097	Screw cap G 9-L/1.0	NK/red with TEF/transparent, 1.0 mm	15.60	14.85	14.10	13.40
301098	Screw cap G 9-L/Sil	Silicone/white with PTFE/red, 1.0 mm	23.45	22.30	21.20	20.15
301099	Screw cap G 9-L/red	Silicone/white both side PTFE/red, 1.0 mm	32.30	30.75	29.25	27.85




KH-Vial Combi G 1
Clear and amber
Article description vial and screw cap see page 90

pk/100 Vial combi contains
Vial and Screw cap G 9-L (with inserted sealing disk)




P/N Appendix →	Type	Vials type: BF = with lettering field FM = Fill marker	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
302872	Combi of 301100 + 301397-Blau	clear	23.75	22.60	21.50	20.40
302873	Combi of 301100 + 301398-Blau	clear	28.55	27.15	25.80	24.55
302874	Combi of 301101 + 301397-Blau	clear-BF-FM	24.85	23.65	22.50	21.35
302875	Combi of 301101 + 301398-Blau	clear-BF-FM	29.65	28.20	26.80	25.50
302876	Combi of 301001 + 301397-Blau	amber-BF-FM	26.00	24.70	23.55	22.35
302877	Combi of 301001 + 301398-Blau	amber-BF-FM	30.80	29.30	27.85	26.50


Thread 10 mm (N 10, 10-425)



MultoMan introduces:

Screw Top Vial 1 ml with wide mouth
Thread 10-425 (ID 6.2 mm)
Size: 32.0 x 11.5 mm
e.g. for Waters and Varian Autosampler





P/N Appendix →	Type BF = with lettering field		€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301131	Vial G 1/10, clear	Neck-ID = 6 mm	14.60	13.90	13.20	12.55
301131-BF	Vial G 1/10-BF, clear	Neck-ID = 6 mm	15.35	14.60	13.90	13.20
301132	Vial G 1/10, amber	Neck-ID = 6 mm	16.25	15.45	14.70	14.00
301133	Screw cap G 10-L/black	Hole-Ø = 7 mm	8.55	8.10	7.70	7.30
301134	Screw cap G 10-L/red	Hole-Ø = 7 mm	11.90	11.30	10.75	10.20
301135	Sealing disk G 10-Sil	Silicone/PTFE, 1.5 mm	18.90	18.00	17.10	16.25
301207	Screw cap G 10-L/black (301133) with inserted Sealing disk, G 10-Sil (301135)		29.20	27.80	26.45	25.15
302830	Combi G 1/10, clear, contains: 301131, 301133, 301135		39.80	37.90	36.05	34.30

Suitable micro inserts 6 mm see page 92

Thread 13 mm (N 13, 13-425)



Screw Top Vials, made of Glass and PP, pk/100

Glass of 1st Hydrolytic Class according to DIN ISO 719, PP Vials made of Polypropylene

P/N	Type BF = with lettering field	Vol.	Vial Height x OD	€/pk/100 at a purchase quantity of:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→						
300104	Vial G 4, clear	4 ml	45.0 x 14.75 mm	17.55	16.70	15.90	15.10
300106	Vial G 4, amber	4 ml	45.0 x 14.75 mm	22.70	21.60	20.55	19.55
301278	Vial G 4-BF+FM, clear	4 ml	45.0 x 14.75 mm	21.20	20.15	19.15	18.20
300626	Vial G 4-PP	2 ml	45.0 x 14.75 mm	28.20	26.85	25.55	24.30

Suitable micro inserts see page 92

Screw Caps G 13 for Screw Top Vials, pk/100

P/N	Type	Material	Hole-Ø mm/ Color	€/pk/100 at a purchase quantity of:			
				1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→						
300307	Screw Cap G 13	Resin	without/black	9.15	8.70	8.25	7.85
301307	Screw Cap G 13/PP	PP	without/black	9.90	9.40	8.95	8.50
300308	Screw Cap G 13-L	Resin	9.0 mm/black	9.15	8.70	8.25	7.85
301308	Screw Cap G 13-L/PP	PP	8.5 mm/black	9.90	9.40	8.95	8.50
301121	Screw Cap G 13-L(w)	PP	8.5 mm/white	10.35	9.85	9.35	8.90

301103		301096		300357		300358		301077		300356							
Hardness in shore A (D) →						60°		60°		55°		53°(D)		45°		60°	

Sealing Disks G 13 for Screw Caps G 13, pk/100

P/N	Type	Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→					
301103	Sealing Disk G 13-1.0	NK/red with TEF/transparent, 1.0 mm	15.40	14.65	13.95	13.25
301096	Sealing Disk G 13-1.3	NK/red with TEF/transparent, 1.3 mm	15.40	14.65	13.95	13.25
300357	Sealing Disk G 13	BK/red with PTFE/blue, 1.0 mm	15.40	14.65	13.95	13.25
300358	Sealing Disk G 13-PTFE	PTFE/white, 0.2 mm	8.65	8.20	7.80	7.40
301077	Sealing Disk G 13-Sil/red-white	Silicone/white with PTFE/red, 1.3 mm	22.35	21.25	20.20	19.20
300356	Sealing Disk G 13-Sil	Silicone/transp. with PTFE/red, 1.5 mm	22.35	21.25	20.20	19.20

Screw Caps G 13 with **inserted** Sealing Disks G 13, pk/100.

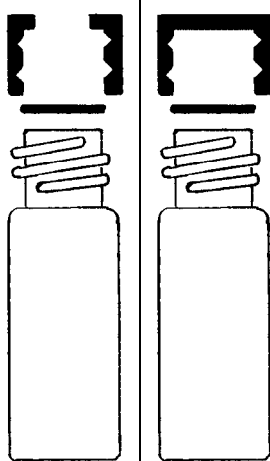
P/N	Type	P/N	Sealing Disk	P/N	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→							
301158	Screw cap G 13/PP	301307	Sealing disk G 13-1.3	301096	25.70	24.45	23.25	22.10
301172	Screw cap G 13-L/PP	301308	Sealing disk G 13-1.3	301096	25.70	24.45	23.25	22.10
301136	Screw cap G 13-L/PP	301308	Sealing disk G 13-Sil	301073	35.15	33.45	31.85	30.30

Are you looking for another combination screw cap / sealing disk ?

No problem, please ask for your combination; with pleasure we submit the offer.

Continue of page 106:

Combi Packs, pk/100 Screw Top Vial with Screw Cap and Sealing Disk (not assembled)

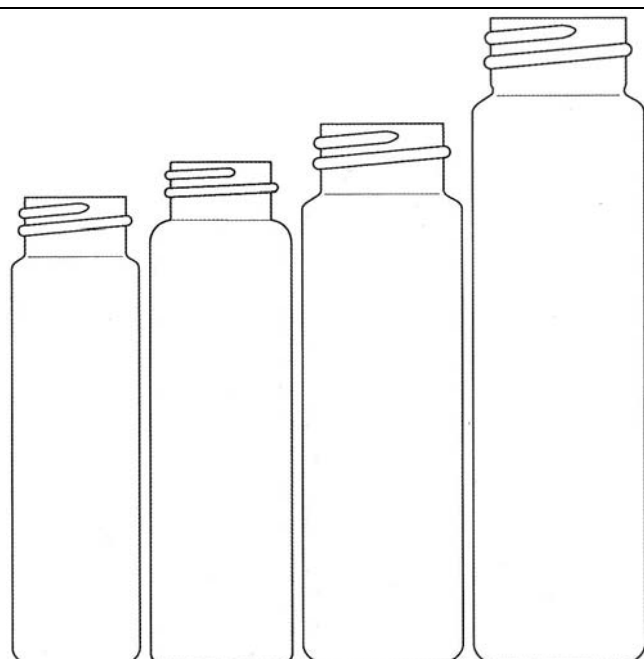
	P/N	Combi Pack contains:		€/pk		
	Appendix →			1-9 pk -01	10-49 pk -10	
	300820	Vial G 4, clear (300104)	+ Screw Cap G 13-L (300308)	+ Sealing Disk G 13 (300357)	40.00	38.05
	300830	Vial G 4, amber (300106)	+ Screw Cap G 13-L (300308)	+ Sealing Disk G 13 (300357)	43.50	41.35
	300825	Vial G 4, clear (300104)	+ Screw Cap G 13-L (300308)	+ Sealing Disk G 13-PTFE (300358)	33.60	31.95
	300835	Vial G 4, amber (300106)	+ Screw Cap G 13-L (300308)	+ Sealing Disk G 13-PTFE (300358)	37.05	35.20
	300465	Vial G 4, clear (300104)	+ Screw Cap G 13 (300307)	+ Sealing Disk G 13 (300357)	40.00	38.05
	300466	Vial G 4, amber (300106)	+ Screw Cap G 13 (300307)	+ Sealing Disk G 13 (300357)	43.50	41.35

Thread 15, 16 und 20 mm (G 15, G 16 and G 20)

Screw Top Vials, made of Glass

pk/100

Glass of 1st Hydrolytic Class according to DIN ISO 719



P/N Appendix →	Type	Vol.	Thread	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300130	VialG 8, clear	8 ml	15-425	61.0 x 17.0 mm	20.70	19.70	18.75	17.85
300130-BR	VialG 8, amber	8 ml	15-425	61.0 x 17.0 mm	23.80	22.65	21.55	20.50
300135	VialG 12, clear	12 ml	15-425	66.0 x 19.0 mm	22.20	21.10	20.05	19.05
300135-BR	VialG 12, amber	12 ml	15-425	66.0 x 19.0 mm	25.50	24.25	23.05	21.95
300140	VialG 16, clear	16 ml	18-400	71.0 x 21.0 mm	27.15	25.85	24.60	23.40
300145	VialG 24, clear	24 ml	20-400	85.0 x 23.0 mm	32.70	31.10	29.60	28.15

Sealing Disk for Screw Caps G 15 - G 20, pk/100

P/N Appendix →	Type	Sealing Disk made of:	€/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300362	Sealing Disk G 15	BK/red with PTFE/blue, 1.0 mm	15.55	14.80	14.05	13.35
300364	Sealing Disk G 16	BK/red with PTFE/blue, 1.0 mm	16.10	15.30	14.55	13.85
300366	Sealing Disk G 20	BK/red with PTFE/blue, 1.0 mm	17.00	16.15	15.35	14.60

Continue of page 107:



Screw Caps G 15 - G 20 for Screw Top Vials, pk/100

P/N	Type	of:	Thread	Hole Ø mm Color	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→							
300328	Screw Cap G 15	Resin	15-425	without/black	14.55	13.85	13.15	12.50
300329	Screw Cap G 15-L	Resin	15-425	9 mm/black	12.50	11.90	11.30	10.75
300331	Screw Cap G 16	Resin	18-400	without/black	17.75	16.90	16.05	15.25
300333	Screw Cap G 16-L	Resin	18-400	11 mm/black	13.35	12.70	12.05	11.45
300335	Screw Cap G 20	Resin	20-400	without/black	18.25	17.35	16.50	15.70
300336	Screw Cap G 20-L	Resin	20-400	15 mm/black	22.80	21.70	20.65	19.65

Screw Caps G 15 - G 20 with **inserted** Sealing Disk, pk/100

P/N	Description			€/pk/100 at a purchase quantity of:			
	Screw Cap		Sealing Disk	1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
Appendix	→						
300330	Screw Cap G 15-E	300328	Sealing Disk G 15 300362	36.35	34.60	32.95	31.35
300332	Screw Cap G 16-E	300331	Sealing Disk G 16 300364	48.40	46.05	43.85	41.75
300334	Screw Cap G 20-E	300335	Sealing Disk G 20 300366	50.25	47.85	45.55	43.35

Thread 15, 16 and 20 mm

Combi Packs, pk/100 Screw Top Vials with Screw Cap and Sealing Disk (not assembled)

P/N	Combi Pack contains:	€/pk	
		1 - 9 pk	10-49 pk
Appendix	→	-01	-10
300470	Vial G 8, clear (300130) + Screw Cap G 15 (300328) + Sealing Disk G 15 (300362)	48.30	45.95
300475	Vial G 12, clear (300135) + Screw Cap G 15 (300328) + Sealing Disk G 15 (300362)	49.70	47.30
300480	Vial G16, clear(300140) + Screw Cap G 16 (300331) + Sealing Disk G 16 (300364)	57.95	55.15
300485	Vial G 24, clear (300145) + Screw Cap G 20 (300335) + Sealing Disk G 20 (300366)	64.60	61.40
300470-E	Vial G 8, clear (300130) Screw Cap G 15-E (300330)	56.20	53.50
300475-E	Vial G 12, clear (300135) Screw Cap G 15-E (300330)	55.65	52.95
300480-E	Vial G16, clear (300140) Screw Cap G 16-E (300332)	71.80	68.35
300485-E	Vial G 24, clear (300145) Screw Cap G 20-E (300334)	78.85	75.05
Container for Screw Top Vials you will find on page 114			

Thread 18 mm (G 18, DIN 18)

Screw Top Vials made of Amber Glass, pk/100
Glass of 3rd Hydrolytic Class according to DIN ISO 719



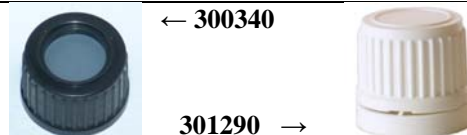
P/N Appendix	Type →	Vol.	Thread	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300105	Vial G 5, amber	6 ml	DIN 18	50.0 x 22.5 mm	25.20	24.00	22.85	21.75
300110	Vial G 10, amber	12 ml	DIN 18	60.5 x 25.0 mm	25.20	24.00	22.85	21.75
300112	Vial G 20, amber	21 ml	DIN 18	72.5 x 29.5 mm	26.00	24.75	23.55	22.40
300115	Vial G 50, amber	55 ml	DIN 18	92.0 x 38.0 mm	32.70	31.10	29.60	28.15
300120	Vial G 100, amber	100 ml	DIN 18	111.0 x 47.0 mm	49.05	46.70	44.45	42.30

Screw Cap G 18 for Thread Vial pk/100.



P/N Appendix	Type →	Material	Thread	Hole-Ø mm/ Colour	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300315	Screw Cap G 18	PP	DIN 18	without/black	9.20	8.75	8.30	7.90
300320	Screw Cap G 18-L	PP	DIN 18	12 mm/black	9.20	8.75	8.30	7.90
300310	Screw Cap G 18-Z (Use without sealing disk)	PE	DIN 18	with inner sealing ring/black	9.50	9.20	8.75	8.30

Screw cap G 18-L with inserted Sealing disk



P/N Appendix	Type/Description →	€/pk/100 at a purchase quantity of:			
		1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300340	Screw Cap G 18-L/HS /black, hole-Ø 12 mm, thread DIN 18	23.80	22.65	21.55	20.50
301267	Screw Cap G 18/BK-1.6 /black, without hole, thread DIN 18	23.80	22.65	21.55	20.50
301290	Screw Cap G 18-PE/O-BK /white, without hole, thread DIN 18	23.80	22.65	21.55	20.50

Sealing disk G 18 for Screw cap G18, pk/100

P/N Appendix	Type →	contains:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300360	Sealing Disk G 18	BK/red with PTFE/blue, 1.3 mm	15.90	15.10	14.35	13.65
301340	Sealing Disk G 18/HS	BK/red with PTFE/blue, 1.6 mm	12.95	12.30	11.70	11.10
301317	Sealing Disk G 18/BK-1.8	BK/red with PTFE/blue, 1.8 mm	12.95	12.30	11.70	11.10
301116	Sealing Disk G 18-Sil	Silicone/white with PTFE/red, 1.3 mm	35.60	33.90	32.25	30.70
301111	Sealing Disk G 18-red	Silicone/white, both sides PTFE/red, 1.0 mm	45.15	43.00	40.95	39.00

Continue of DIN 18-Thread:

Vial Combi, pk/100. Screw Top Vial with Screw cap and Sealing disk

P/N	Combi Pack contains:	€/pk	
		1-9 pk	10-49 pk
Appendix	→	-01	-10
300850	Vial G 5, amber (300105) + Sealing disk G 18 (300360) + Screw cap G 18-L (300320)	47.80	45.50
300855	Vial G 5, amber (300105) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	47.80	45.50
300865	Vial G 10, amber (300110) + Sealing disk G 18 (300360) + Screw cap G 18-L (300320)	47.80	45.50
300870	Vial G 10, amber (300110) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	47.80	45.50
300876	Vial G 20, amber (300112) + Sealing disk G 18 (300360) + Screw cap G 18-L (300320)	48.55	46.20
300878	Vial G 20, amber (300112) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	48.55	46.20
300880	Vial G 50, amber (300115) + Sealing disk G 18 (300360) + Screw cap G 18-L (300320)	54.95	52.25
300885	Vial G 50, amber (300115) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	54.95	52.25
300895	Vial G 100, amber (300120) + Sealing disk G 18 (300360)+Screw cap G 18-L (300320)	70.45	67.05
300900	Vial G 100, amber (300120) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	70.45	67.05
300901	PET-Vial G 10, amber (301268) + Seal. disk G 18 (300360) + Screw cap G 18-L (300320)	42.00	39.90
300902	PET-Vial G 10, amber (301268) + Sealing disk G 18 (300360) + Screw cap G 18 (300315)	42.00	39.90

Special Vials with Threads: DIN 18, 18-400 and DIN 22

P/N	Description	€/pk/100 at a purchase quantity of:			
		1-9 pk	10-49 pk	50-99 pk	+ 100 pk
Appendix	→	-01	-10	-50	-100
301268	PET-Vial G 10, amber, 48 x 25 mm, DIN 18, Weight 8 g/ea. PET = very good chemical resistance = temperature stabile from - 40 to +110°C = high Impact strength, food contact <i>Suitable Screw cap DIN 18, see page 95</i>	19.10	18.15	17.25	16.40
301026	Vial G 20-SZ, klar, 58 x 27 mm, DIN 22 of ESTAX-Glass (Glass of 1 st Hydrolytic Class according to DIN ISO 719) Delivery incl. srew cap DIN 22 with inserted sealing disk of Cork/Alu	52.95	50.40	48.00	45.70

Screw Top Vials for Head Space and SPME

Screw Top Vials 10 and 20 ml with magnetic screw caps and inserted sealing disks for CTC Combi Pal

- use without crimper /decapper
- comfortable closing technique
- no sample transfer needed
- easy to open / easy to close

Remark: The Fine Pitch Thread "G 18F" is incompatible with the German DIN 18-Thread on Page 109 and 111



HS Screw Top Vials and magnetic Caps, pk/100

Glass of 1st Hydrolytic Class according to DIN ISO 719, and magnetic Screw Caps with inserted Sealing Disks

P/N Appendix	Type →	Vol.	Thread	Size Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301236	HS Screw Top Vial G 10, clear	10 ml	G 18F	46.0 x 22.5 mm	22.65	21.55	20.50	19.50
301237	HS Screw Top Vial G 10, amber	10 ml	G 18F	46.0 x 22.5 mm	31.90	30.35	28.90	27.50
301242	HS Screw Top Vial G 20, clear	20 ml	G 18F	75.5 x 22.5 mm	24.95	23.75	22.60	21.50
301243	HS Screw Top Vial G 20, amber	20 ml	G 18F	75.5 x 22.5 mm	34.20	32.55	31.00	29.50

Magnetic Screw Caps with Thread G 18F and inserted Sealing Disks



	301345	301346	301347	
301345	magnetic HS Screw Cap G 18/BK, with inserted Sealing Disk made of BK, red/PTFE, gray, 1.6 mm, 55° shore A			31.85 30.30 28.85 27.45
301346	magnetic HS Screw Cap G 18/Sil, transp.-white with inserted Sealing Disk made of Silicone, blue-transp./PTFE, white, 1.3 mm, 45° shore A <i>This type is favored from CTC.</i>			54.20 51.60 49.10 46.75
301347	magnetic HS Screw Cap G 18/Sil, white-blue with inserted Sealing Disk made of Silicone, white/PTFE, blue, 1.5 mm, 55° shore A			68.35 65.05 61.95 59.00



Still up-to-date:

HS Screw Top Vials for autosampler from Agilent, Carlo Erba, Perkin-Elmer, Thermoquest, Varian etc.; which normally operate with Crimp Caps made of Aluminium (not magnetic).

A real option to crimp caps !!

P/N Appendix	Type →	Vol.	Thread	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300150	Vial G 20/HS, clear	20 ml	DIN 18	75.5 x 23.0 mm	23.35	22.20	21.10	20.05

PP Screw Caps G 18 for HS Screw Top Vials, with inserted Sealing Disks, pk/100								
300340	PP Screw Cap G 18 with sealing disk BK, red/PTFE, grey, 1.6 mm				23.80	22.65	21.55	20.50
301333-L	PP Screw Cap G 18 with sealing disk Sil, white/PTFE, red, 1.3 mm				47.15	44.90	42.75	40.70
300342	PP Screw Cap G 18 with sealing disk Sil, blue-trans/PTFE, white, 3.0 mm				56.35	53.65	51.05	48.60

Thread 24 mm

(G 24 = 24-400)

EPA-Screw Top Vials, pk/100,

Glass of 1st Hydrolytic Class according to DIN ISO 719

Purity Certificate can be given on request for an additional charge!

BF = with white lettering field

BR = Vials made of amber glass



P/N Appendix	Type →	Vol.	Thread	Vial Height x OD	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300160	EPA Vial G 24, clear	20 ml	24 mm	57.0 x 27.5 mm	24.05	22.90	21.80	20.75
300160-BF	EPA Vial G 24, clear-BF	20 ml	24 mm	57.0 x 27.5 mm	32.55	31.00	29.50	28.05
300160-BR	EPA Vial G 24, amber	20 ml	24 mm	57.0 x 27.5 mm	32.55	31.00	29.50	28.05
300162	EPA Vial G 30, clear	30 ml	24 mm	72.0 x 27.5 mm	29.10	27.70	26.35	25.05
300162-BR	EPA Vial G 30, amber	30 ml	24 mm	72.0 x 27.5 mm	35.80	34.05	32.40	30.85
300165	EPA Vial G 40, clear	40 ml	24 mm	95.0 x 27.5 mm	30.15	28.70	27.30	26.00
300165-BR	EPA Vial G 40, amber	40 ml	24 mm	95.0 x 27.5 mm	38.60	36.75	35.00	33.30
300170	EPA Vial G 60, clear	60 ml	24 mm	140 x 27.5 mm	41.90	39.90	38.00	36.15
300170-BR	EPA Vial G 60, amber	60 ml	24 mm	140 x 27.5 mm	46.65	44.40	42.25	40.20

Screw Caps G 24 for EPA Screw Top Vials, pk/100



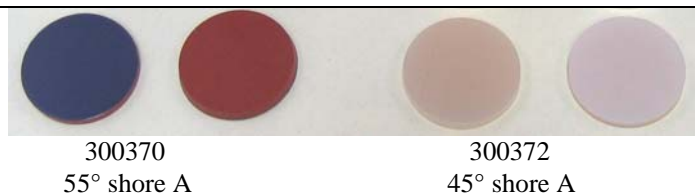
P/N Appendix	Type →	of:	Thread	Hole Ø mm Color	€/pk/100 at a purchase quantity of:			
					1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300345	Screw Cap G 24	PP	24 mm	without, white	17.40	16.55	15.75	15.00
300346	Screw Cap G 24-L	PP	24 mm	12.5 mm, white	17.40	16.55	15.75	15.00
301036	Screw Cap G 24-L/17	Resin	24 mm	17 mm, black	17.40	16.55	15.75	15.00

Screw caps G 24 with inserted seal disks, pk/100



P/N Appendix	Screw Cap →	Sealing Disk	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
301273	Screw Cap G 24 (300345)	Seal Butyl/PTFE	41.25	39.25	37.35	35.55
301219	Screw Cap G 24-L (300346)	Seal Butyl/PTFE	41.25	39.25	37.35	35.55
301238-E	Screw Cap G 24/Sil (300345)	Seal Silicone/PTFE	59.05	56.20	53.50	50.95
301238-E	Screw Cap G 24-L/Sil(300346)	Seal Silicone/PTFE	59.05	56.20	53.50	50.95
301211	Ultrabond-Lock G 24	Mounted Seal Silicone/PTFE	55.40	52.75	50.20	47.80
301142	Ultrabond-Lock G 24-L	Mounted Seal Silicone/PTFE	53.40	50.85	48.40	46.05

Sealing Disks G 24 for Screw Caps G 24 pk/100



P/N Appendix	Description Sealing Disk →	Type Sealing Disk made of:	€/pk/100 at a purchase quantity of:			
			1-9 pk -01	10-49 pk -10	50-99 pk -50	+ 100 pk -100
300370	Sealing Disk G 24	Butyl rubber/red with PTFE/gray, 2.5 mm	26.70	25.40	24.15	23.00
300372	Sealing Disk G 24-Sil	Silicone/white with PTFE/beige, 3.2 mm	41.35	39.35	37.45	35.65

CERTAN-Capillary Bottles for Standard Solution

CERTAN =

Amber neck threaded bottles for retention of standard solution and mixtures with volatile compounds.

By fused into the opening capillary evaporation losses are also with an open bottle of very low.

The pre- share at a glance:

- safe storage of standard solutions
- minimum change of concentration even when open bottle
- low risk of contamination
- low risk of leakage
- optimum storage of volatile substances
- hassle-free part removal possible



Fig: 1:1, Delivery incl. Screw cap

wash bottle incl. capillary

P/N <i>Appendix</i>	Description →	Volume	Vial Height x OD	€/pk/100 at a purchase quantity of:	
				1-9 pk -01	+10 pk -10
056015	CERTAN-capillary bottle 1,5 ml, pk/10	1,5 ml	51 x 12 mm	72.60	60.00
056045	CERTAN- capillary bottle 4,5 ml, pk/5	4,5 ml	79 x 15 mm	55.50	43.00
056010	CERTAN- capillary bottle 10 ml pk/5	10 ml	85 x 30 mm	62.50	50.00
056100	Wash bottle incl. capillary for CERTAN (all size)			105.20/ea.	

Vial Storage Container

Picture	P/N	Description	€/ea.
	198102-Colour	Container F 81, empty, made of Polypropylene, shockproof for 81 Vials up to 32 x 12 mm (Height x OD) with alphanumeric Coding Holes: 12.6 x 12.6 mm Inner dimensions: L x B x H = 125 x 125 x 42 mm	12.50
		Available colors (base color, transparent cover) 198102-Blue 198102-Yellow 198102-Orange 198102-Pink 198102-Green 198102-Transparent	+ 10 ea. 12.00

Supplied with threaded or snap ring bottles of size 32 x 11,5 (12) mm. See examples below:

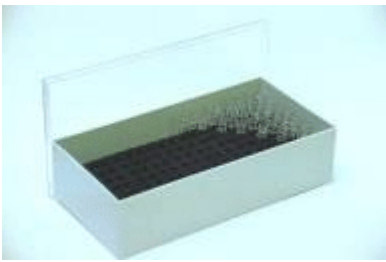

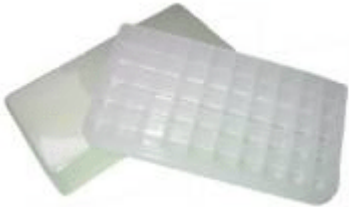




P/N	Description:	€/ea.
302872-F81-Colour	(Container F81 (Please specify color) + 81 pcs. combined according to the specified P/N Container 198102- F81-Colour incl. Combi 302872 (see page 105), Screw cap screwed	31.25
302873-F81-Colour	Container 198102- F81-Colour incl. Combi 302873 (see page 105), Screw cap screwed	35.15
302874-F81-Colour	Container 198102- F81-Colour incl. Combi 302874 (see page 105), Screw cap screwed	32.15
302876-F81-Colour	Container 198102- F81-Colour incl. Combi 302876 (see page 105), Screw cap screwed	33.10

You need a different combination? Please ask for your personal offer.

You will find more containers and supporting racks for sample bottles on the pages 114 and 115

Container with Top, Design CS, for storage and/or handling of sample vials

. . . . simplify your work increase the safety are stackable space-saving and **inexpensive !!**

	P/N	Description	€/Box
	198115	Container F 08, empty, made of Polystyrene for 144 Vials up to 40 x 8 mm (Height x OD) with foam plastic insert , 144 bore holes 8 mm Ø Inner dimension: L x B x H = 201 x 100 x 50 mm	
	198115-01	ea	29.25
	198115-05	+ 5 ea	27.85
	198115-10	+ 10 ea	26.50
	198100	Container F 1, empty, made of Polystyrene, transparent for 50 Vials up to 32 x 12 mm (Height x OD) with insert made of Polystyrene Holes: 12.6 x 12.6 mm Inner dimensions: L x B x H = 142 x 74 x 40 mm Used up -10 to +80°C	
	198100-01	ea	3.85
	198100-05	+ 5 ea	3.65
	198100-10	+ 10 ea	3.45
	198101	Container F 1, empty, made of Polypropylene, milky, shockproof for 50 Vials up to 32 x 12 mm (Height x OD) with insert made of Polypropylene Holes: 12.6 x 12.6 mm Inner dimensions: L x B x H = 142 x 74 x 40 mm Used up -10 to +80°C	
	198101-01	ea	4.35
	198101-05	+ 5 ea	4.10
	198101-10	+ 10 ea	3.90
	198110	Container F 4, empty, made of Polystyrene for 50 Vials up to 45 x 15 mm (Height x OD) with foam plastics insert 50 bore holes 15 mm Ø Inner dimensions: L x B x H = 201 x 100 x 50 mm	
	198110-01	ea	9.15
	198110-05	+ 5 ea	8.70
	198110-10	+ 10 ea	8.25
	198120	Container F 10, empty, made of Polystyrene for 63 Vials up to 76 x 21 mm (Height x OD) with cardboard insert Holes: 21 x 21 mm Inner dimensions: L x B x H = 200 x 155 x 76 mm	
	198120-01	ea	18.60
	198120-05	+ 5 ea	17.10
	198120-10	+ 10 ea	16.25
	198125	Container F 20, empty, made of Polystyrene for 48 Vials up to 76 x 23 mm (Height x OD) with cardboard insert Holes: 23 x 23 mm Inner dimensions: L x B x H = 200 x 155 x 76 mm	
	198125-01	ea	19.80
	198125-05	+ 5 ea	18.85
	198125-10	+ 10 ea	17.95
	198130	Vial Rack, PP²⁾ for 50 Vials up to 12 mm OD Size: L x B x H = 200 x 105 x 21 mm	ea 14.00
	198134	Vial Rack, PP²⁾ for 50 Vials up to 15 mm OD Size: L x B x H = 230 x 117 x 28 mm	ea 18.00
	029868805	Vial Rack, PP²⁾ for 36 Vials up to 23 mm OD Size: L x B x H = 324 x 92 x 29 mm	ea 42.00
	029868806	Vial Rack, PP²⁾ for 50 EPA Vials up to 27 mm OD Size: L x B x H = 330 x 172 x 29 mm	ea 52.50

PE¹⁾=Polyethylene, PP²⁾=Polypropylene

Supporting Racks for Vials Clean-Up Rack

- stable, because made from PVC
- two plates included
- all metal parts from Stainless Steel
- stackable
- use also in refrigerator



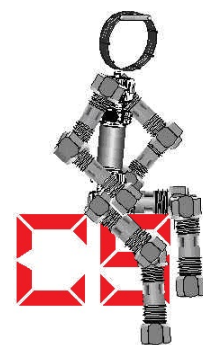
Supporting Racks and Vials Racks for Autosampler-Vials and Vials for Standards and Test Mixtures

	P/N	Description	€ea.
	198150	Supporting Rack Type 1 with 50 bores 12 mm diameter for 50 vials up to 32 x 12 mm (height x OD) L x B x H = 210 x 150 x 50 mm	1-4 ea. 41.90 5-9 ea. 39.90 +10 ea. 38.00
		For all crimp and snap ring vials 11 mm and screw vials with thread 8, 9 and 10 mm	
	061010	Supporting Rack Type 10 with 27 bores 25.5 mm diameter for 27 vials up to 61 x 25 mm (height x OD) L x B x H = 335 x 130 x 83 mm	1-4 ea. 40.80 5-9 ea. 38.85 +10 ea. 37.00
	061015	Supporting Rack Type 30 with 14 bores 36 mm diameter for 14 vials up to 75 x 34.5 mm (height x OD) L x B x H = 335 x 130 x 97 mm	1-4 ea. 44.10 5-9 ea. 42.00 +10 ea. 40.00
		For standard storage, e.g. Screw Top Vials G 10	
		For standard storage, e.g. Screw Top Vials G 30	
	061025	Vial-Rack Type 50 with 54 bores 32 mm diameter for 54 vials up to 101 x 31 mm (height x OD) L x B x H = 365 x 245 x 70 mm	1-4 ea. 71.70 5-9 ea. 68.25 +10 ea. 65.00
		For Crimp Top Vials R 50h (P/N 300051)	
	061020	Clean Up Rack for 10 Clean Up Columns up to 11 mm OD Height adjustable L x B x H = 300 x 100 x 200 mm	1-4 ea. 94.85 5-9 ea. 90.30 +10 ea. 86.00

Custom-made products - also in little lots – possible !
Please ask for your special rack !




Columns qualification of GC- and HPLC- separation columns


- You want to know if your old, unused long separation column is still okay?
- the separation efficiency has sink?
- the polarity has changed?
- the peak symmetry is worse?
- can you use the columns still your analytics?



We are happy to accept the columns qualification for you:

The price includes the column test, consisting of chromatogram and test report:

P/N	Column type		€ea.
007-HPLC	HPLC-Column		50,00
007-GC-GS	Packed GC-Column		75,00
007-GC-FS	GC-Capillary Column		100,00

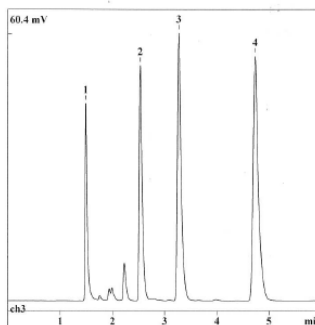
QM-Prüfbericht		Säulenqualifizierung		Blatt 1 von 1
		Prüfung HPLC-Trennsäule		Änd. 0 Freigabe: 21.01.2014/R6
Kunde				
Kunde / Kunden-Nr.		Eingangsdatum		
Max Mustermann, D80000		01.02.2016		
Dimension	Säulen-Nr.	Bezeichnung	Hersteller	
250x4mm	6010123 A	Nucleosil 120-5 C18	Macherey Nagel	
Optische Beurteilung				
Verpackung	Leichte Gebrauchsspuren			
Original-Testbericht	Vorhanden und lesbar			
Hardware	Edelstahlsäule			
Säulentest				
CS-Test		Herstellertest		
Testlösung	Toluol-Propylbenzol-Pentylbenzol	Phenol-Naphthalin-Anthracen		
Fluss/Injektionsvolumen	1,3mL/min – 2µL	1,0mL/min – 2µL		
Elutionsmittel	Acetonitril:Wasser (80:20)	Acetonitril:Wasser (80:20)		
Testergebnis				
	Auslieferung	Herstellertest	CS-Test	Abweichung
Bodenzahl (TP/m) letzter Peak	69464 (lt. Hersteller)	45676	51236	(-) 34%
Peaksymetrie bei 10% Höhe (letzter Peak)	1.26	1.59	1.56	(-) 21%
Retentionszeit (letzter Peak)	382.8s	5.25min	4.73min	(-) 18%
Druck (bar)	80	80	100	0%
Gesamtbewertung				
Datum/Bearbeiter: 11.02.2016/ Rötman				

CS – Chromatographie Service GmbH

HPLC - Säule 250 x 4.0 mm
 Nucleosil 120 - 5 C18
 Charge: 6019
 Art. - Nr.:
 Säulen-Nr.: Qualitätsbericht 6010123 A

PROBE : Uracil (Totzeit) - Toluol - Propylbenzol - Pentylbenzol
 0.89mm-47.0mm-71.7mm-87.0mm (in Acetonitril)

Einspritzvolumen: 2.0 µl
 Mobile Phase: 80% Acetonitril : 20% Wasser
 Fluss: 1.30 mL/min
 Linearer Fluss: 2.80 mm/s
 Temperatur: 20.0°C
 Druck: 100.0 bar
 Detektor: UV 254nm



No	Retention min	Breite/2 min	Höhe mV	TP	TP/m	HETP(µ)	Asym.	Name
2	2.53	0.055	51.18	11714	46855	21.34	1.67	Toluol
3	3.27	0.070	58.22	12283	49132	20.35	1.63	Propylbenzol
4	4.73	0.098	53.29	12809	51236	19.52	1.56	Pentylbenzol

HPLC-Columns

Column Hardware:

All CS produced SS-HPLC-Columns are delivered with standard column heads (10/32 UNF female) and fitting adapters for direct connection with 1/16"-Fittings (HYPERCHROME hardware system).

On request we deliver other Column types (e.g. **Cartridge-Hardware**)

We also deliver columns in **Special Lengths**, which you don't find in our standard program



Standard Lengths:	60 mm 125 mm 250 mm	Other Lengths:	100 mm 150 mm 200 mm 300 mm	Special Lengths: on request
Prices for Other Lengths: (New and Refill)	100 mm (New) = New-Price 125 mm 150 mm (New) = New-Price 125 mm + 20 % 200 mm (New) = New-Price 250 mm 300 mm (New) = New-Price 250 mm + 30 %			
Column-ID:	analytical 2 mm (Microbore) 3 mm ("Solvent Saver") 4 mm (Standard) 4.6 mm (Standard)		(Semi-) Preparative 8 mm (Semipreparative) 10 mm (Semipreparative) 20 mm (Preparative)	
ECO-Columns will be delivered without column heads and fitting adapters. They are closed with an ECO end cap. Buying an ECO-Columns saves you 10.00 € Please complete the P/N with „ECO“ if you want to buy ECO columns.				
Packing materials: Over 25 years practical knowledge give a guarantee for the quality of CS HPLC Columns with packing materials of miscellaneous manufacturers. We have on stock the following trade name packing materials:				
CS-Phases:		Phases of other manufacturers:		
MultoHigh®	Page 123 - 125	Kromasil®	Page 134	
MultoHigh® -BIO	Page 124	LiChrosorb®	Page 136	
MultoHigh® -U	Page 123	LiChrospher®	Page 137	
Multohyp	Page 131	NUCLEOSIL®	Page 138 - 139	
MultoKrom	Page 131-132	Partisil®	Page 142	
Multospher®	Page 126 – 130	ProntoSIL®	Page 140 - 141	
Carbohydrate-Resin	Page 146	PRP®	Page 147	
Chirale Phasen	Page 145	Sphere-Image®	Page 143	
Organic Acid-Resin	Page 146	Superspher®	Page 144	
Inertsil®	Page 133			

Column Hardware and Accessories: 2 - 3 - 4 - 4.6 - 8 - 20 mm ID

Made of Stainless Steel, complete with Sieve Set (20 mm ID with frit), Fitting Adapter and Column Head 10/32 UNF female

P/N	Description:	Total length [mm]	Bed length [mm]	ID [mm]	€ea
424001	Empty Column Kit	17	10	4.6	47.90
424003	Empty Column Kit	40	33	4.6	47.90
424003-05	Empty Column Kit	57	50	4.6	47.90
424005	Empty Column Kit	60	53	4.6	47.90
424005-10	Empty Column Kit	107	100	4.6	63.90
424007	Empty Column Kit	132	125	4.6	63.90
424007-15	Empty Column Kit	157	150	4.6	69.10
424009	Empty Column Kit	257	250	4.6	69.10
424009-30	Empty Column Kit	307	300	4.6	71.10
424401	Empty Column Kit	40	33	8	59.75
424402	Empty Column Kit	132	125	8	75.20
424403	Empty Column Kit	257	250	8	86.55
424410	Empty Column Kit	50	50	20	152.45
424411	Empty Column Kit	250	250	20	205.00

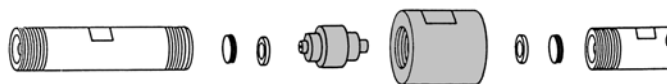
All Empty Column Kits are also available with 4.0, 3.0 and 2.0 mm ID.

P/N	Description:	€ea
424201	Column Head, for 2 - 4.6 mm ID columns	8.15
424202	Fitting Adapter, for 2 - 4.6 mm ID columns	5.55
424420	Fitting Adapter, for 8 mm ID columns	12.65
424252	Capillary End-tubing 1/16" OD x 0.25 mm ID, 25 cm, for 2 - 4.6 mm ID columns	27.35
424245	Cap. End-tub. 1/16" OD x 0.25 mm ID. 50 cm, for 2 - 4.6 mm ID columns	37.90
424255	Cap. End-tub. 1/16" AD x 0.12 mm ID, 25 cm, for 2 - 4.6 mm ID columns	35.25
424242	Cap. End-tub. 1/16" AD x 0.12 mm ID. 50 cm, for 2 - 4.6 mm ID columns	45.75
424257	Connection Part, stainless steel, for 2 - 4.6 mm ID columns	27.35
424404	Connection Part, stainless steel, for 8 mm ID columns	32.60
424204	Connection Nut, stainless steel, for 2 - 4.6 mm ID columns	14.25
424405	Connection Nut, stainless steel, for 8 mm ID columns	32.60
424415	Connection Nut, stainless steel, for 20 mm ID columns	48.90

P/N	Description:	€Pg./ea.
424208	PTFE Sealing Gasket, for 2 - 4.6 mm ID columns	pk/4 4.35
424218	PTFE Sealing Gasket, for 2 - 4.6 mm ID columns	pk/40 37.90
424209	Sieve Set, little (8 x Micronic 5 μ , 12 x Glass Fiber Filter), for 2 - 4.6 mm ID columns	6.70
424219	Sieve Set, big (80 x Micronic 5 μ , 120 x Glass Fiber Filter), for 2 - 4.6 mm ID columns	54.65
424210	Glass Fiber Filters, for 2-4.6 mm ID columns	pk/250 43.15
424259	Micronic Sieve, 3 μ , for 2-4.6 mm ID columns	pk/100 62.00
424211	Micronic Sieve, 5 μ , for 2-4.6 mm ID columns	pk/100 51.50
424019	PTFE Sealing Gasket, for 8 mm ID columns	pk/2 5.55
424020	Sieve Set (4 x Micronic Sieve 5 μ , 6 x Glass Fiber Filter), for 8 mm ID columns	11.10
424414	Frit with PTFE Ring, for 20 mm ID columns	11.10
424212	ECO Cap. Column End Cap. for 2 - 4.6 mm ID columns	2.80
590074	Screw Plug with cone for columns; made of Delrin (black); 10/32 UNF male	1.30
590079	Screw Plug with cone for columns; made of PEEK, 10/32 UNF male	5.30
590080	Screw Plug with cone for columns; made of Stainless Steel, 10/32 UNF male	11.10


Direct Coupling of Guard Columns or HPLC Columns

Advantage: The guard column or second HPLC column is connected by the stainless steel Connector (P/N 424257) and the stainless steel Coupling Nut (P/N 424204) (both see p. 102) to the HPLC column.



Alternative: A direct connection is also possible with the PEEK One-Piece Coupler (P/N 590253).

P/N	Description	€ea
590253	PEEK One-Piece Coupler	27.85

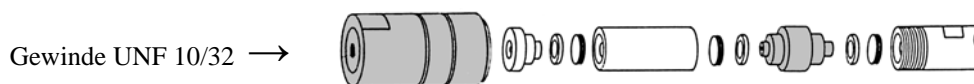


Guard Column Holder for Guard Columns Cartridges

(Suitable Cartridges see page 120/121)

Guard Column Head (direct connection to the column)

Direct connection of the Guard Column with the analytical column.



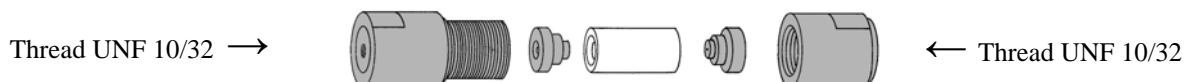
P/N	Description	€ea
424262	Guard Column Head for 1 cm and 2 cm guard columns, including Connector made of stainless steel, for 2 - 4.6 mm ID columns	113.55
424266	Guard Column Head for 0.5 cm guard columns, including Connector made of stainless steel, for 2 - 4.6 mm ID columns	86.20
424267	Guard Column Head for 1 cm guard columns, including Connector made of stainless steel, for 2 - 4.6 mm ID columns	86.20
424257	Connector, stainless steel, for 2 - 4.6 mm ID columns	27.35
424216	Nut + Capillary End Piece 1/16" OD x 0.25 mm ID, 25 cm, for using the Guard Column Head as Guard Column Holder	32.60

Guard Column Holder Connection to the Column over capillary)

Advantages: The Guard Column Holder was developed for situations, where a direct connection with the analytical column is impossible due to different connection systems. For all that you can use the advantages of a Guard Column. The Guard Column Holder becomes connected to the separation column via capillary tubing.

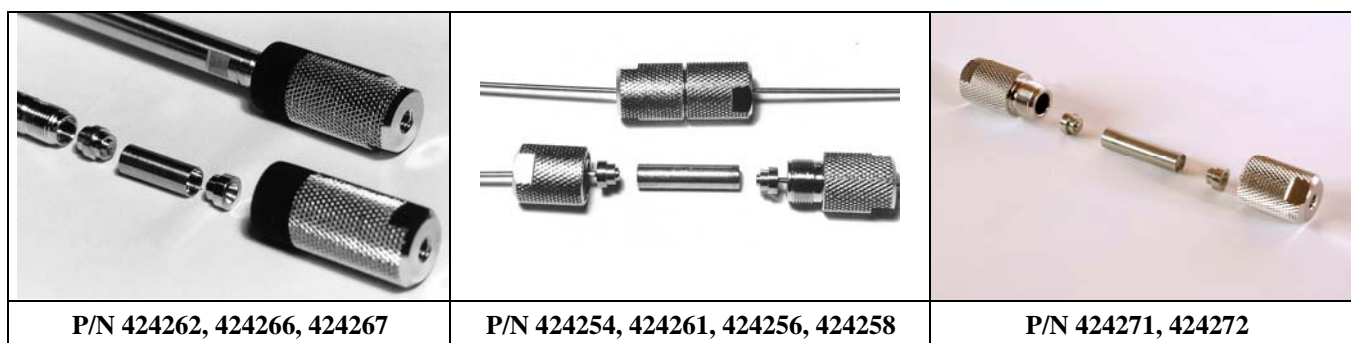


P/N	Description	€ea
424254	Guard Column Holder for 2 cm Cartridges with 2 Capillary End Pieces 1/16" ODx 0.25 mm ID, 25 cm	105.10
424261	Guard Column Holder for 2 cm Cartridges with 2 Capillary End Pieces 1/16" ODx 0.12 mm ID, 25 cm	115.60
424256	Guard Column Holder with Spacers, with 2 Capillary End Pieces 1/16" OD x 0.25 mm ID, 25 cm	115.60
424258	Guard Column Holder with Spacers, with 2 Capillary End Pieces 1/16" OD x 0.12 mm ID, 25 cm	127.20
424213	Spacers (2 ea), for use of 0.5 cm and 1 cm Guard Columns	27.35



P/N	Description	€ea
424271	Guard Column Holder for 1 cm Cartridges with UNF 10/32 female, including 2 pcs. Fitting Adapter	105.10
424272	Guard Column Holder for 2 cm Cartridges with UNF 10/32 female, including 2 pcs. Fitting Adapter	115.60

Precolumn cartridges - the P/N system



The multitude of possibilities for the packing materials in cartridges by placing a „own“ P/N per cartridge would lead to an enormously expansion of the catalogue.

Therefore we made a „collective number“ for the precolumn cartridges, which should be completed with the last 3-5 ciphers of the P/N from the equivalent analytical column (P/N of the 125 mm column),

e.g.:

Precolumn cartridge 20x4mm - collective number: **558401-xxx**

Packing material: **Multospher 100 RP 18-5**, three end ciphers for the column 125x4mm = **-375**, result is the complete P/N of cartridges 20x4mm, packed with **Multospher 100 RP 18-5** = P/N: **558401-375**

e.g.:

Precolumn cartridge 20x2mm – collective number: **558201-xxx**

Packing material: **ProntoSIL 120-5-C18 ace-EPS**, five end ciphers for the column 125x4mm = **-05F29**, result is the complete P/N of cartridges 20x2mm, packed with **ProntoSIL 120-5-C18 ace-EPS** = P/N: **558201-05F29**

Because the ciphers for the specification of the packing material vary (between 3 and 5 ciphers) you will find by the respective column listing the information, how many ciphers you have to add to the collective number of the precolumn cartridge.

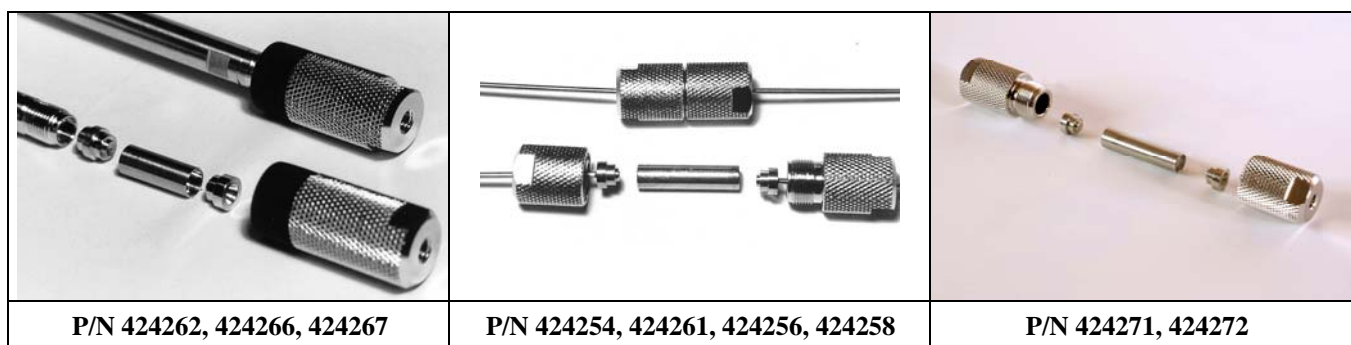
Example from page 127:

Multospher-Precolumn cartridges; please complete the part number with the last 3 ciphers (P/N of the 125 mm column): **Multospher 120 RP 18-5 please complete with –479.**

An extension of the P/N is not necessary if you tell us the exact name of the packing material for the precolumn cartridge, we then complete the P/N.

For the price we have classified the packing materials in the following price groups.

Price group I	Price group II	Price group III	Price group IV
LiChrosorb MultoKrom	Kromasil LiChrospher	Partisil PRP	MultoHigh U
MultoHigh Exception: MultoHigh Chiral See page 145 MultoHigh U (Gr.IV)	Multohyp NUCLEOSIL ProntoSIL Exception: ProntoSIL ace-EPS (Gr. III)	ProntoSIL ace-EPS	
Multospher Exception: Multospher Kation See page 130	Carbohydrate-Resin Organic Acid-Resin Sphere-Image Superspher		



Precolumn Cartridges

Length x ID (mm) → →	10 x 2		20 x 2		10 x 3		20 x 3	
P/N → →	558205 - XXX	5585206 - XXX	558201 - XXX	5585202 - XXX	558305 - XXX	5585306 - XXX	558301 - XXX	5585302 - XXX
Packing material	€ea.	€5 pc.	€ea.	€5 pc.	€ea.	€5 pc.	€ea.	€5 pc.
Price group I	26.60	126.20	27.60	131.40	24.50	116.40	28.70	136.50
Price group II	26.60	126.20	27.60	131.40	26.60	126.20	30.80	146.80
Price group III	27.60	131.40	29.80	141.70	28.70	136.50	39.30	187.00
Price group IV	38.30	181.80	41.40	196.80	40.40	191.10	43.60	207.10

Length x ID (mm) → →	5 x 4		10 x 4		20 x 4	
P/N → →	558403 - XXX	5585404 - XXX	558405 - XXX	5585406 - XXX	558401 - XXX	5585402 - XXX
Packing material	€ea.	€5 pc.	€ea.	€5 pc.	€ea.	€5 pc.
Price group I	22.90	108.70	26.60	126.20	37.60	179.30
Price group II	25.60	121.60	29.80	141.70	41.40	196.80
Price group III	27.60	131.40	35.10	166.40	51.00	242.10
Price group IV	38.30	181.80	47.80	227.20	59.50	282.80

Precolumn without Test Chromatogram

Length x ID (mm) → →	40 x 2		40 x 3		17 x 4	
	New	Refill	New	Refill	New	Refill
P/N → →	554201 - XXX	534201 - XXX	554301 - XXX	534301 - XXX	517401 - XXX	514401 - XXX
Packing material	€ea.	€5 pc.	€ea.	€5 pc.	€ea.	€5 pc.
Price group I	102.70	77.70	88.90	63.90	82.00	57.00
Price group II	102.70	77.70	88.90	63.90	83.20	58.20
Price group III	119.20	94.20	107.60	82.60	95.80	70.80
Price group IV	140.40	115.40	161.60	136.60	140.40	115.40

Length x ID (mm) → →	40 x 4		17 x 4.6		40 x 4.6	
	New	Refill	New	Refill	New	Refill
P/N → →	554001 - XXX	534001 - XXX	517001 - XXX	514001 - XXX	555001 - XXX	535001 - XXX
Packing material	€ea.	€5 pc.	€ea.	€5 pc.	€ea.	€5 pc.
Price group I	93.80	68.80	83.70	58.70	101.70	76.70
Price group II	104.40	79.40	92.60	67.60	115.50	90.50
Price group III	121.30	96.30	112.80	87.80	136.70	111.70
Price group IV	188.10	163.10	161.60	136.60	211.00	186.00

Short columns (also for LC-MS) with Test Chromatogram

Length x ID (mm) → →	60 x 2		60 x 3		60 x 4		60 x 4.6	
	New	Refill	New	Refill	New	Refill	New	Refill
P/N → →	556201 - XXX	536201 - XXX	556301 - XXX	536301 - XXX	556001 - XXX	536001 - XXX	557001 - XXX	537001 - XXX
Packing material	€ea.	€ea.	€ea.	€ea.	€ea.	€ea.	€ea.	€ea.
Price group I	144.10	118.10	144.10	118.10	130.90	104.90	143.00	117.00
Price group II	155.80	129.80	156.80	130.80	151.00	125.00	170.60	144.60
Price group III	195.50	169.50	172.80	146.80	177.50	151.50	202.40	176.40
Price group IV	370.60	344.60	370.60	344.60	370.60	344.60	370.60	344.60

The *Multo*-Phases from

MultoHigh[®]-U is an ultrahigh-pure silica with a particle size of 2µm and particularly small counter-pressure.	Page 123
MultoHigh[®] are high quality HPLC phases from CS. They are based on ultrahigh-pure silica which is coated with an optimized binding technologies. This results in phases with excellent separation quality and very high stability.	Page 123-125
MultoHigh[®]-BIO The phases of the <i>MultoHigh-BIO</i> series are especially optimized for the analysis of bio-molecules like proteins and peptides.	Page 124
Multospher[®] HP und Multospher[®] AQ These phases are based on high-pure silica with 120 Å pore diameter and can be used as universal phases in a variety of applications. The abbreviation HP stands for H igh P urity, AQ stands for "Aqua" thus a phase that can be run with 100 % aqueous mobile phase.	Page 126-128
Multospher[®] <i>Multospher</i> stands for the well-established HPLC phases from CS. A comprehensive program of different coatings, pore sizes and particle sizes are available.	Page 125-130
Multospher[®] Spezialphasen Some phases have been designed for special application areas, including <i>Multospher PSM</i> (Pesticides), <i>Multospher PAH III</i> (Poly Aromatic Hydrocarbons), <i>Multospher FBS</i> (for basic compounds) and <i>Multospher Kation</i> (mono- and divalent cations).	Page 129-130
Multohyp The silica specifications and the coating of <i>Multohyp</i> are nearly identical to that of Hypersil [®] . Therefore <i>Multohyp</i> can be used as alternative to Hypersil.	Page 131
MultoKrom[®] The silica specifications and the coating of <i>MultoKrom[®]</i> are nearly identical to that of Kromasil [®] . Therefore <i>MultoKrom[®]</i> can be used as alternative to Kromasil.	Page 131-132

Specifications of the *Multo*-Phases

	sph/irr	Pore- Ø	Pore Volume	Surface Area	C- Content C8/RP8 MOS	End- capped	C-Content C18/RP18 ODS	End- capped
MultoHigh-U	sph.	120 Å	1.0 ml/g	300 m ² /g			17 %	yes
MultoHigh 100	sph.	100 Å	1.1 ml/g	450 m ² /g	15 %	yes	17 %	yes
MultoHigh-BIO 120	sph.	120 Å	1.0 ml/g	300 m ² /g			20 %	yes
MultoHigh-BIO 200	sph.	200 Å	1.1 ml/g	200 m ² /g	8 %	yes	15 %	yes
MultoHigh-BIO 300	sph.	300 Å	0.9 ml/g	100 m ² /g	3 % (C4)	yes		
Multospher HP	sph.	120 Å	1.0 ml/g	300 m ² /g			17 %	yes
Multospher AQ	sph.	120 Å	1.0 ml/g	300 m ² /g			15 %	yes
Multospher 100	sph.	100 Å	0.9 ml/g	350 m ² /g	7,5 %	no	14 %	yes
Multospher 120	sph.	120 Å	0.7 ml/g	185 m ² /g	7 %	no	11 %	yes
Multospher 300	sph.	300 Å	0.75 ml/g	80 m ² /g	2,5 %	yes	6 %	yes
Multospher FBS	sph.	100 Å	0.9 ml/g	350 m ² /g			25 %	PB (C ₁₈)
Multospher PSM	sph.	100 Å	0.9 ml/g	350 m ² /g	12%	no		PB (C ₈)
Multospher PAH-III	sph.	300 Å	0.75 ml/g	80 m ² /g				
Multohyp ODS	sph.	120 Å	0.65 ml/g	180 m ² /g			10 %	yes
Multohyp BDS	sph.	120 Å	0.65 ml/g	180 m ² /g			11 %	PB (C ₁₈)
MultoKrom	sph.	100 Å	0.9 ml/g	340 m ² /g	11 %	yes	18 %	yes
MultoKrom 300	sph.	300 Å	0,71 ml/g				6,8 %	yes
MultoKrom 300 C4	sph.	300 Å	0,79 ml/g		C4 2,8 %	yes		

Further useful information you will find on our website: www.cs-chromatographie.com

MultoHigh[®]-U

The NEW Phases for **UHPLC**

UHPLC, U-HPLC, UPLC[®], X-LC[®], RRLC[®], UFLC[®], Fast LC ...

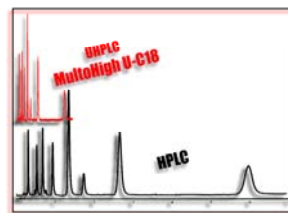
([®] are registered trademarks of the particular producer)

... behind all these terms the **fast HPLC** is hidden which was enabled by the developments of the instrument manufacturers. At least so important as the instrumental requirements are suitable columns with particle sizes between 1.5 and 2.5 μm. The smaller the particles the higher is the prospective separation efficiency. Simultaneously the back pressure increases which results in restrictions.

Pro's of MultoHigh[®]-U Columns:

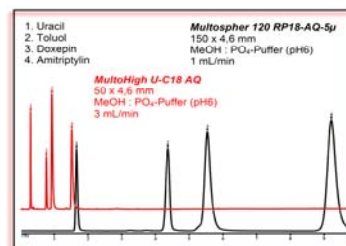
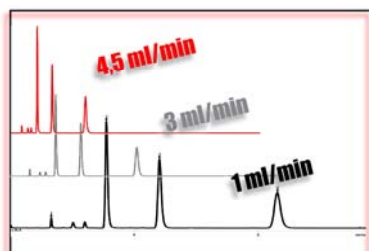
- Higher Resolution
- Higher Sensitivity
- Low Back Pressure

Fast Analysis



2 mm ID	P/N: New Length x ID 50 x 2 mm	New-Price €ea.	P/N: Refill Length x ID 50 x 2 mm	Refill-Price €ea.	P/N: New Length x ID 100 x 2 mm	New-Price €ea.	P/N: Refill Length x ID 100 x 2 mm	Refill-Price €ea.
MultoHigh U-Si	582190505	371.00	580190505	345.00	582190510	446.00	580190510	417.00
MultoHigh U-C4	582190905	371.00	580190905	345.00	582190910	446.00	580190910	417.00
MultoHigh U-NH2	582190705	371.00	580190705	345.00	582190710	446.00	580190710	417.00
MultoHigh U-Phenyl	582190205	371.00	580190205	345.00	582190210	446.00	580190210	417.00
MultoHigh U-C18	582190105	371.00	580190105	345.00	582190110	446.00	580190110	417.00
MultoHigh U-C18 AQ	582190305	371.00	580190305	345.00	582190310	446.00	580190310	417.00
3 mm ID	P/N: New Length x ID 50 x 3 mm	New-Price €ea.	P/N: Refill Length x ID 50 x 3 mm	Refill-Price €ea.	P/N: New Length x ID 100 x 3 mm	New-Price €ea.	P/N: Refill Length x ID 100 x 3 mm	Refill-Price €ea.
MultoHigh U-Si	583190505	371.00	530190505	344.00	583190510	446.00	530190510	418.00
MultoHigh U-C4	583190905	371.00	530190905	344.00	583190910	446.00	530190910	418.00
MultoHigh U-NH2	583190705	371.00	530190705	344.00	583190710	446.00	530190710	418.00
MultoHigh U-Phenyl	583190205	371.00	530190205	344.00	583190210	446.00	530190210	418.00
MultoHigh U-C18	583190105	371.00	530190105	344.00	583190110	446.00	530190110	418.00
MultoHigh U-C18 AQ	583190305	371.00	530190305	344.00	583190310	446.00	530190310	418.00
4 mm ID	P/N: New Length x ID 50 x 4 mm	New-Price €ea.	P/N: Refill Length x ID 50 x 4 mm	Refill-Price €ea.	P/N: New Length x ID 100 x 4 mm	New-Price €ea.	P/N: Refill Length x ID 100 x 4 mm	Refill-Price €ea.
MultoHigh U-Si	584190505	371.00	540190505	346.00	584190510	446.00	540190510	419.00
MultoHigh U-C4	584190905	371.00	540190905	346.00	584190910	446.00	540190910	419.00
MultoHigh U-NH2	584190705	371.00	540190705	346.00	584190710	446.00	540190710	419.00
MultoHigh U-Phenyl	584190205	371.00	540190205	346.00	584190210	446.00	540190210	419.00
MultoHigh U-C18	584190105	371.00	540190105	346.00	584190110	446.00	540190110	419.00
MultoHigh U-C18 AQ	584190305	371.00	540190305	346.00	584190310	446.00	540190310	419.00
4,6 mm ID	P/N: New Length x ID 50 x 4,6 mm	New-Price €ea.	P/N: Refill Length x ID 50 x 4,6 mm	Refill-Price €ea.	P/N: New Length x ID 100 x 4,6 mm	New-Price €ea.	P/N: Refill Length x ID 100 x 4,6 mm	Refill-Price €ea.
MultoHigh U-Si	586190505	371.00	546190505	345.00	586190510	446.00	546190510	418.00
MultoHigh U-C4	586190905	371.00	546190905	345.00	586190910	446.00	546190910	418.00
MultoHigh U-NH2	586190705	371.00	546190705	345.00	586190710	446.00	546190710	418.00
MultoHigh U-Phenyl	586190205	371.00	546190205	345.00	586190210	446.00	546190210	418.00
MultoHigh U-C18	586190105	371.00	546190105	345.00	586190110	446.00	546190110	418.00
MultoHigh U-C18 AQ	586190305	371.00	546190305	345.00	586190310	446.00	546190310	418.00

MultoHigh-U columns are available in different dimensions on request. Please let us know your desired length and ID.



Increase of the Flow without loss of Separation Efficiency
This simple test with aromatic compounds shows that the flow can be increased without loss of separation efficiency. In combination with a shortening of the column a time saving of factor 10 can be achieved easily.

Time Saving using the example of Trizyclic Antidepressants
By changing to a short *MultoHigh U-C18 AQ* column and simultaneous increase of the flow the analysis time can easily be reduced easily by the factor 5 - 10. In the above sample a standard HPLC system was used at a pressure of 220 bar.

MultoHigh[®] Reverse Phases

MultoHigh[®]-Phases are excellent characteristics leads to best results in standard and threshold usage of reversed phase chromatography. Ultra high-pure silica combined with sophisticated binding technology gives a phase that comes up to highest standards.

Excellent peak symmetry, also for basic substances, high retention for hydrophobic and hydrophilic compounds, exceeding stability under acidic and basic conditions, stable with aqueous mobile phases and high loadability are the excellences of these phases.

MultoHigh [®] –guard columns: For prices and explanation see page 120 and 121								
Please complement the guard column P/N with the last 4 ciphers (separated by: -) of the P/N of the corresponding 125 mm analytical column.								
For Example: MultoHigh 100 RP 18-5 μ please add: -1172								
2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill-Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill-Price €ea.
MultoHigh 100 RP8-3 μ	5821126	230.00	5801126	203.00	5821226	290.00	5801226	261.00
MultoHigh 100 RP8-5 μ	5821124	203.00	5801124	176.00	5821224	266.00	5801224	237.00
MultoHigh 100 RP18-3 μ	5821174	230.00	5801174	203.00	5821274	290.00	5801274	261.00
MultoHigh 100 RP18-5 μ	5821172	203.00	5801172	176.00	5821272	266.00	5801272	237.00
MultoHigh-BIO-200-C18 5 μ	5821175	263.00	5801175	236.00	5821275	332.00	5801275	303.00
MultoHigh-BIO-200-C8 5 μ	5821176	263.00	5801176	236.00	5821276	332.00	5801276	303.00
MultoHigh-BIO-300-C4 5 μ	5821177	263.00	5801177	236.00	5821277	332.00	5801277	303.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill-Price €ea.
MultoHigh 100 RP8-3 μ	5831126	215.00	5301126	188.00	5831226	289.00	5301226	262.00
MultoHigh 100 RP8-5 μ	5831124	203.00	5301124	176.00	5831224	266.00	5301224	238.00
MultoHigh 100 RP18-3 μ	5831174	215.00	5301174	188.00	5831274	289.00	5301274	262.00
MultoHigh 100 RP18-5 μ	5831172	203.00	5301172	176.00	5831272	266.00	5301272	238.00
MultoHigh-BIO-200-C18 5 μ	5831175	249.00	5301175	222.00	5831275	332.00	5301275	304.00
MultoHigh-BIO-200-C8 5 μ	5831176	249.00	5301176	222.00	5831276	332.00	5301276	304.00
MultoHigh-BIO-300-C4 5 μ	5831177	249.00	5301177	222.00	5831277	332.00	5301277	304.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill-Price €ea.
MultoHigh 100 RP8-3 μ	5841126	204.00	5401126	179.00	5841226	269.00	5401226	242.00
MultoHigh 100 RP8-5 μ	5841124	182.00	5401124	157.00	5841224	251.00	5401224	224.00
MultoHigh 100 RP18-3 μ	5841174	204.00	5401174	179.00	5841274	269.00	5401274	242.00
MultoHigh 100 RP18-5 μ	5841172	182.00	5401172	157.00	5841272	251.00	5401272	224.00
MultoHigh 100 SCX-5 μ	5841136	223.00	5401136	198.00	5841236	306.00	5401236	279.00
MultoHigh-BIO-200-C18 5 μ	5841175	223.00	5401175	198.00	5841275	306.00	5401275	279.00
MultoHigh-BIO-200-C8 5 μ	5841176	223.00	5401176	198.00	5841276	306.00	5401276	279.00
MultoHigh-BIO-300-C4 5 μ	5841177	223.00	5401177	198.00	5841277	306.00	5401277	279.00
4.6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill-Price €ea.
MultoHigh 100 RP8-3 μ	5861126	218.00	5461126	192.00	5861226	326.00	5461226	298.00
MultoHigh 100 RP8-5 μ	5861124	208.00	5461124	182.00	5861224	298.00	5461224	270.00
MultoHigh 100 RP18-3 μ	5861174	218.00	5461174	192.00	5861274	326.00	5461274	298.00
MultoHigh 100 RP18-5 μ	5861172	208.00	5461172	182.00	5861272	298.00	5461272	270.00
MultoHigh 100 SCX-5 μ	5861136	250.00	5461136	224.00	5861236	369.00	5461236	341.00
MultoHigh-BIO-200-C18 5 μ	5861175	250.00	5461175	224.00	5861275	369.00	5461275	341.00
MultoHigh-BIO-200-C8 5 μ	5861176	250.00	5461176	224.00	5861276	369.00	5461276	341.00
MultoHigh-BIO-300-C4 5 μ	5861177	250.00	5461177	224.00	5861277	369.00	5461277	341.00

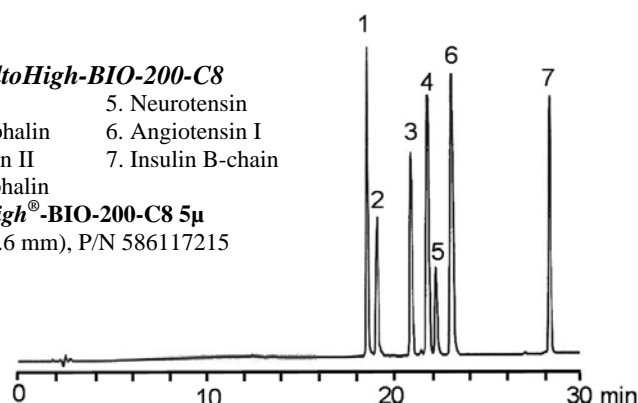
NEW!

NEW!

Peptides on MultoHigh-BIO-200-C8

1. Oxytocin
2. Met-Enkephalin
3. Angiotensin II
4. Leu-Enkephalin
5. Neurotensin
6. Angiotensin I
7. Insulin B-chain

Column: MultoHigh[®]-BIO-200-C8 5 μ
(150 x 4.6 mm), P/N 586117215



Polar Multo Phases

MultoHigh[®] - Multospher[®]

- ✘ Polar Phases for extension of the selectivity spectrum
- ✘ Applicable for Normal Phase- and Reversed Phase Chromatography (HILIC)
- ✘ Highest Multo-Quality

Multospher und MultoHigh[®] – guard columns:

For **prices** and **explanation** see page 120 and 121

Please complement the guard column P/N with the last 4 ciphers (separated by: -) of the P/N of the corresponding 125 mm analytical column.

For Example: MultoHigh 100 CN 5 μ please add: -1133

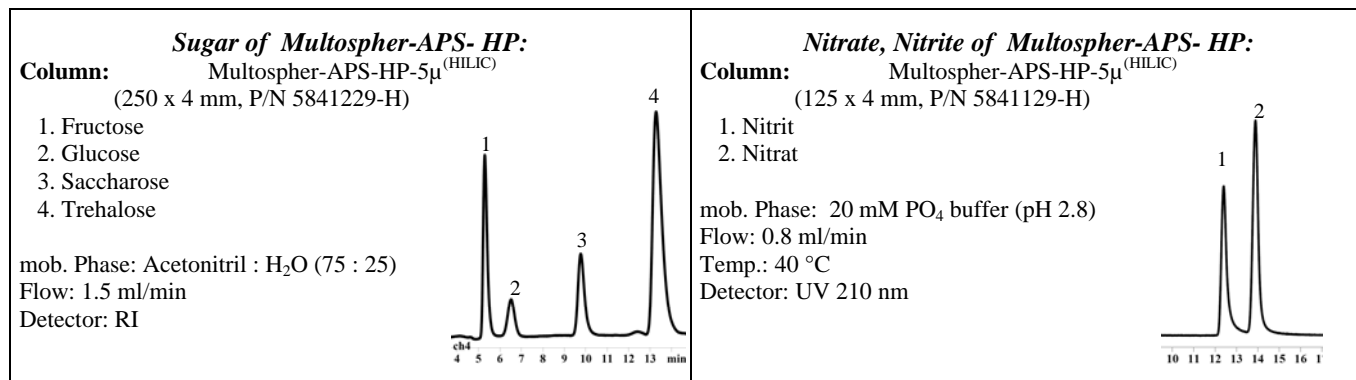
2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
MultoHigh 100 Si-3 μ	5821180	230.00	5801180	203.00	5821280	290.00	5801280	261.00
MultoHigh 100 Si-5 μ	5821173	203.00	5801173	176.00	5821273	267.00	5801273	238.00
MultoHigh 100 Phenyl-3 μ	5821179	230.00	5801179	203.00	5821279	290.00	5801279	261.00
MultoHigh 100 Phenyl-5 μ	5821178	203.00	5801178	176.00	5821278	267.00	5801278	238.00
MultoHigh 100 DIOL 3 μ	5821134	230.00	5801134	203.00	5821234	290.00	5801234	261.00
MultoHigh 100 DIOL 5 μ	5821135	203.00	5801135	176.00	5821235	267.00	5801235	238.00
MultoHigh 100 CN 3 μ	5821132	230.00	5801132	203.00	5821232	290.00	5801232	261.00
MultoHigh 100 CN 5 μ	5821133	203.00	5801133	176.00	5821233	267.00	5801233	238.00
Multospher-APS-HP-3 μ	5821128	230.00	5801128	203.00	5821228	290.00	5801228	261.00
Multospher-APS-HP-5 μ	5821129	203.00	5801129	176.00	5821229	267.00	5801229	238.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
MultoHigh 100 Si-3 μ	5831180	215.00	5301180	188.00	5831280	284.00	5301280	256.00
MultoHigh 100 Si-5 μ	5831173	203.00	5301173	176.00	5831273	266.00	5301273	238.00
MultoHigh 100 Phenyl-3 μ	5831179	215.00	5301179	188.00	5831279	284.00	5301279	256.00
MultoHigh 100 Phenyl-5 μ	5831178	203.00	5301178	176.00	5831278	266.00	5301278	238.00
MultoHigh 100 DIOL 3 μ	5831134	215.00	5301134	188.00	5831234	290.00	5301234	262.00
MultoHigh 100 DIOL 5 μ	5831135	203.00	5301135	176.00	5831235	266.00	5301235	238.00
MultoHigh 100 CN 3 μ	5831132	215.00	5301132	188.00	5831232	290.00	5301232	262.00
MultoHigh 100 CN 5 μ	5831133	203.00	5301133	176.00	5831233	266.00	5301233	238.00
Multospher-APS-HP-3 μ	5831128	215.00	5301128	188.00	5831228	290.00	5301228	262.00
Multospher-APS-HP-5 μ	5831129	203.00	5301129	176.00	5831229	266.00	5301229	238.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
MultoHigh 100 Si-3 μ	5841180	204.00	5401180	179.00	5841280	268.00	5401280	241.00
MultoHigh 100 Si-5 μ	5841173	182.00	5401173	157.00	5841273	251.00	5401273	224.00
MultoHigh 100 Phenyl-3 μ	5841179	204.00	5401179	179.00	5841279	268.00	5401279	241.00
MultoHigh 100 Phenyl-5 μ	5841178	182.00	5401178	157.00	5841278	251.00	5401278	224.00
MultoHigh 100 DIOL 3 μ	5841134	204.00	5401134	179.00	5841234	263.00	5401234	236.00
MultoHigh 100 DIOL 5 μ	5841135	182.00	5401135	157.00	5841235	251.00	5401235	224.00
MultoHigh 100 CN 3 μ	5841132	204.00	5401132	179.00	5841232	263.00	5401232	236.00
MultoHigh 100 CN 5 μ	5841133	182.00	5401133	157.00	5841233	251.00	5401233	224.00
Multospher-APS-HP-3 μ	5841128	204.00	5401128	179.00	5841228	263.00	5401228	236.00
Multospher-APS-HP-5 μ	5841129	182.00	5401129	157.00	5841229	251.00	5401229	224.00
4,6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
MultoHigh 100 Si-3 μ	5861180	218.00	5461180	192.00	5861280	323.00	5461280	295.00
MultoHigh 100 Si-5 μ	5861173	205.00	5461173	179.00	5861273	298.00	5461273	270.00
MultoHigh 100 Phenyl-3 μ	5861179	218.00	5461179	192.00	5861279	323.00	5461279	295.00
MultoHigh 100 Phenyl-5 μ	5861178	205.00	5461178	179.00	5861278	298.00	5461278	270.00
MultoHigh 100 DIOL 3 μ	5861134	218.00	5461134	192.00	5861234	323.00	5461234	295.00
MultoHigh 100 DIOL 5 μ	5861135	205.00	5461135	179.00	5861235	298.00	5461235	270.00
MultoHigh 100 CN 3 μ	5861132	218.00	5461132	192.00	5861232	323.00	5461232	295.00
MultoHigh 100 CN 5 μ	5861133	205.00	5461133	179.00	5861233	298.00	5461233	270.00
Multospher-APS-HP-3 μ	5861128	218.00	5461128	192.00	5861228	323.00	5461228	295.00
Multospher-APS-HP-5 μ	5861129	205.00	5461129	179.00	5861229	298.00	5461229	270.00

Multospher[®]-APS-HP

Multospher[®]-APS-HP is the new *Amino*-(NH₂)-HPLC phase of CS. **Ultra High Pure Silicagel** of the Multospher 120 HP-series, combined with an **perfected Aminopropyl binding**, results in a separation phase, which fulfill the requirements of the versatile application areas of Amino phases.

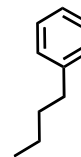
Multospher[®]-APS-HP columns are used both in the normal phase chromatography, where they are operated with non polar Eluents (e.g. Hexan/Isopropanol), and in the **HILIC-** (*Hydrophilic Interaction Chromatography*) and/or **ANP-** (*Aqueous Normal Phase*) mode. Here are used aqueous eluents (e.g. Acetonitril/Water). In addition **Multospher[®]-APS-HP** can be used as weak ion exchanger.

Hints to special **HILIC Columns** you find below in the grey highlighted field.



MultoHigh[®] Phenyl

The **MultoHigh Phenyl** is a polar RP-phase and an excellent extension to n-alkyl modified phases. Beside the higher polarity this phase shows a different selectivity in comparison to C8 or C18 phases. As most phenyl phases link the aromatic ring to the silica surface with an ethyl or propyl spacer, the MultoHigh Phenyl phase uses a C4 spacer. Thereby the distance to the silica surface is increased which results in an increased aromatic selectivity by stronger π - π interactions and in a higher stability at the same time.



Polar Phases for Normal Phase and Reversed Phase Chromatography (HILIC)

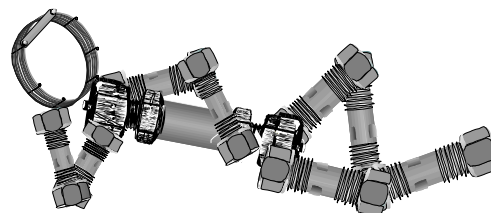
Polar phases like the **Multo** phases **Si, Phenyl, DIOL, CN and APS** can be used for the Normal Phase Chromatography as well as Reversed Phase Chromatography (also called aqueous normal phase or HILIC).

Changing the chromatographic mode e.g. from Normal Phase to HILIC is a time and solvent consuming process and it can harm the column packing. **Therefore CS offers special HILIC Columns (without surcharge).** These are tested in the HILIC mode and only gets in contact with selected and suitable solvents during the entire production process.

To order a polar Column in the HILIC mode please add "-H" at the end of the part number.
(e.g. 5861235-H for MultoHigh[®] 100 DIOL 5 μ , 250 x 4,6 mm)

... Service is our Power!

Of course all **MultoHigh[®]** phases are also available in special lengths and (semi-) preparative dimensions!



Multospher®



Multospher® HP

Multospher® AQ

Multospher HP and **AQ** are based on high-pure silica with 120 Å pore diameter. Both phases can be used as universal reversed phase materials. Due to a high quality endcapping and minimized metal ion content active compounds like amines gives symmetrical peaks.

Multospher HP has got an extra stable and effective endcapping which results in a higher carbon content and a higher hydrophobicity.

Multospher AQ is stable with 100 % aqueous mobile phase and can for example be used for hydrophilic analytes which show too little retention in the presence of organic modifiers in the mobile phase.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
Multospher 100 Si-3µ	582070	220.00	580070	193.00	582071	238.00	580071	209.00
Multospher 100 Si-5µ	582370	168.00	580370	141.00	582870	227.00	580870	198.00
Multospher 120 Si-3µ	582570	220.00	580570	193.00	582770	238.00	580770	209.00
Multospher 120 Si-5µ	582470	168.00	580470	141.00	582670	227.00	580670	198.00
Multospher 100 RP 8-3µ	582072	220.00	580072	193.00	582073	238.00	580073	209.00
Multospher 100 RP 8-5µ	582373	168.00	580373	141.00	582873	227.00	580873	198.00
Multospher 100 RP 18-3µ	582074	220.00	580074	193.00	582075	238.00	580075	209.00
Multospher 100 RP 18-5µ	582375	168.00	580375	141.00	582875	227.00	580875	198.00
Multospher 120 RP 8-3µ	582475	220.00	580475	193.00	582675	238.00	580675	209.00
Multospher 120 RP 8-5µ	582476	177.00	580476	150.00	582676	227.00	580676	198.00
Multospher 120 RP 18-3µ	582478	220.00	580478	193.00	582678	238.00	580678	209.00
Multospher 120 RP 18-5µ	582479	177.00	580479	150.00	582679	227.00	580679	198.00
Multospher 120 RP18- HP -3µ	5821170	230.00	5801170	203.00	5821270	290.00	5801270	261.00
Multospher 120 RP18- HP -5µ	5821171	203.00	5801171	176.00	5821271	267.00	5801271	238.00
Multospher 120 RP18- AQ -3µ	582574	230.00	580574	203.00	582774	290.00	580774	261.00
Multospher 120 RP18- AQ -5µ	582577	203.00	580577	176.00	582777	267.00	580777	238.00
Multospher 300 RP 4-5µ	582575	168.00	580575	141.00	582775	227.00	580775	198.00
Multospher 300 RP 18-5µ	582578	168.00	580578	141.00	582778	227.00	580778	198.00

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
Multospher 100 Si-3µ	583070	220.00	530070	193.00	583071	266.00	530071	238.00
Multospher 100 Si-5µ	583370	160.00	530370	133.00	583870	199.00	530870	171.00
Multospher 120 Si-3µ	583570	220.00	530570	193.00	583770	266.00	530770	238.00
Multospher 120 Si-5µ	583470	160.00	530470	133.00	583670	199.00	530670	171.00
Multospher 100 RP 8-3µ	583072	220.00	530072	193.00	583073	266.00	530073	238.00
Multospher 100 RP 8-5µ	583373	160.00	530373	133.00	583873	199.00	530873	171.00
Multospher 100 RP 18-3µ	583074	220.00	530074	193.00	583075	266.00	530075	238.00
Multospher 100 RP 18-5µ	583375	160.00	530375	133.00	583875	199.00	530875	171.00
Multospher 120 RP 8-3µ	583475	220.00	530475	193.00	583675	266.00	530675	238.00
Multospher 120 RP 8-5µ	583476	171.00	530476	144.00	583676	209.00	530676	181.00
Multospher 120 RP 18-3µ	583478	220.00	530478	193.00	583678	266.00	530678	238.00
Multospher 120 RP 18-5µ	583479	171.00	530479	144.00	583679	209.00	530679	181.00
Multospher 120 RP18- HP -3µ	5831170	215.00	5301170	188.00	5831270	290.00	5301270	262.00
Multospher 120 RP18- HP -5µ	5831171	205.00	5301171	178.00	5831271	266.00	5301271	238.00
Multospher 120 RP18- AQ -3µ	583574	215.00	530574	188.00	583774	290.00	530774	262.00
Multospher 120 RP18- AQ -5µ	583577	205.00	530577	178.00	583777	266.00	530777	238.00
Multospher 300 RP 4-5µ	583575	171.00	530575	144.00	583775	209.00	530775	181.00
Multospher 300 RP 18-5µ	583578	171.00	530578	144.00	583778	209.00	530778	181.00

Multospher® – precolumn cartridges:

Prices and declaration see page 120 and Seite 121

please complete the part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: 100 RP 18-5µ please add -375, Multospher 120 RP18-HP-5µ please add -1171

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill-Price €ea.
Multospher 100 Si-3µ	584070	198.00	540070	173.00	584071	266.00	540071	239.00
Multospher 100 Si-5µ	584370	153.00	540370	128.00	584870	199.00	540870	172.00
Multospher 120 Si-3µ	584570	198.00	540570	173.00	584770	266.00	540770	239.00
Multospher 120 Si-5µ	584470	153.00	540470	128.00	584670	199.00	540670	172.00
Multospher 100 RP 8-3µ	584072	198.00	540072	173.00	584073	266.00	540073	239.00
Multospher 100 RP 8-5µ	584373	153.00	540373	128.00	584873	199.00	540873	172.00
Multospher 100 RP 18-3µ	584074	198.00	540074	173.00	584075	266.00	540075	239.00
Multospher 100 RP 18-5µ	584375	153.00	540375	128.00	584875	199.00	540875	172.00
Multospher 120 RP 8-3µ	584475	198.00	540475	173.00	584675	266.00	540675	239.00
Multospher 120 RP 8-5µ	584476	174.00	540476	149.00	584676	224.00	540676	197.00
Multospher 120 RP 18-3µ	584478	198.00	540478	173.00	584678	266.00	540678	239.00
Multospher 120 RP 18-5µ	584479	174.00	540479	149.00	584679	224.00	540679	197.00
Multospher 120 RP18-HP-3µ	5841170	204.00	5401170	179.00	5841270	268.00	5401270	241.00
Multospher 120 RP18-HP-5µ	5841171	182.00	5401171	157.00	5841271	251.00	5401271	224.00
Multospher 120 RP18-AQ-3µ	584574	204.00	540574	179.00	584774	268.00	540774	241.00
Multospher 120 RP18-AQ-5µ	584577	182.00	540577	157.00	584777	251.00	540777	224.00
Multospher 300 RP 4-5µ	584575	174.00	540575	149.00	584775	224.00	540775	197.00
Multospher 300 RP 18-5µ	584578	174.00	540578	149.00	584778	224.00	540778	197.00

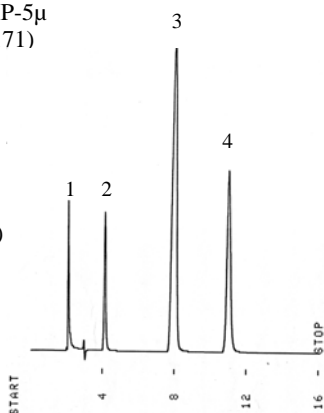
4,6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill-Price €ea.
Multospher 100 Si-3µ	586070	221.00	546070	195.00	586071	306.00	546071	278.00
Multospher 100 Si-5µ	586370	167.00	546370	141.00	586870	226.00	546870	198.00
Multospher 120 Si-3µ	586570	221.00	546570	195.00	586770	306.00	546770	278.00
Multospher 120 Si-5µ	586470	167.00	546470	141.00	586670	226.00	546670	198.00
Multospher 100 RP 8-3µ	586072	221.00	546072	195.00	586073	306.00	546073	278.00
Multospher 100 RP 8-5µ	586373	167.00	546373	141.00	586873	226.00	546873	198.00
Multospher 100 RP 18-3µ	586074	221.00	546074	195.00	586075	306.00	546075	278.00
Multospher 100 RP 18-5µ	586375	167.00	546375	141.00	586875	226.00	546875	198.00
Multospher 120 RP 8-3µ	586475	222.00	546475	196.00	586675	306.00	546675	278.00
Multospher 120 RP 8-5µ	586476	200.00	546476	174.00	586676	265.00	546676	237.00
Multospher 120 RP 18-3µ	586478	222.00	546478	196.00	586678	306.00	546678	278.00
Multospher 120 RP 18-5µ	586479	200.00	546479	174.00	586679	265.00	546679	237.00
Multospher 120 RP18-HP-3µ	5861170	218.00	5461170	192.00	5861270	326.00	5461270	298.00
Multospher 120 RP18-HP-5µ	5861171	208.00	5461171	182.00	5861271	298.00	5461271	270.00
Multospher 120 RP18-AQ-3µ	586574	218.00	546574	192.00	586774	326.00	546774	298.00
Multospher 120 RP18-AQ-5µ	586577	208.00	546577	182.00	586777	298.00	546777	270.00
Multospher 300 RP 4-5µ	586575	200.00	546575	174.00	586775	265.00	546775	237.00
Multospher 300 RP 18-5µ	586578	200.00	546578	174.00	586778	265.00	546778	237.00

Free Acids on Multospher HP:

Column: Multospher 120 RP18-HP-5µ
(250 x 4 mm, P/N 5841171)

1. Ascorbic Acid
2. p-Hydroxy Benzoic Acid
3. Benzoic Acid
4. Sorbic Acid

mob. Phase:
NaH₂PO₄ (50mM): MeOH (80:20)
Flow: 1 ml/min
Detection: UV, 230 nm

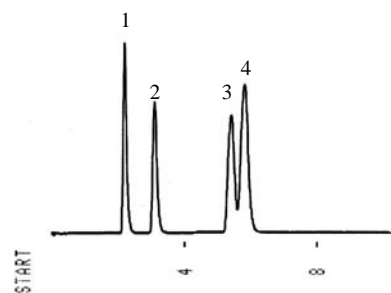


Amino Acids on Multospher AQ:

Column: Multospher 120 RP18-AQ-5µ
(150 x 4.6 mm, P/N 58657415)

1. Alanine
2. Valine
3. Isoleucine
4. Leucine

mob. Phase: H₂O
Flow: 1 ml/min
Temp.: 40 °C
Detection: RI



Fast LC and LC-MS on Multospher 120 RP18 HP:

Many of our customers use short columns of **Multospher 120 RP18-HP** for fast LC or LC-MS applications. With the available 3µm and 5µm materials short run times can be achieved. The stability of the phase makes it useful for a coupling with MSD. Prices and P/N for short columns you will find on page **120** and **121**.

Multospher[®] PSM, FBS and PAH III

Multospher[®] PSM

Regarding drinking water ordinance (TVO) and the corresponding norm DIN 38407-F12 the analysis of 17 pesticides is required. These are mostly triazines and phenyl urea derivatives. The special column **Multospher RP-PSM** was developed to fulfil the high expectations of the norm. This column contains a polymer bounded RP material based on spherical silica.

Multospher[®] 100 RP 18-5 FBS

is a polymeric bonded RP 18 material based on spherical silica. It was developed especially for basic and acidic compounds. The polymeric RP18 coating covers nearly the complete surface to the silica (carbon load: 25 %). In contrast to common RP materials, which tent to adsorption of acidic and basic substances, the polymeric coated phase is almost inert against these compounds.

Multospher[®] PAH-III

This packing material based on spherical silica is a proprietary development especially designed for the separation of **polycyclic aromatic hydrocarbons**. The column enables the separation of benzo(b)fluoranthene and perylene beside the 16 PAH's of the US-EPA list.

3 mm ID	P/N: New	New-Price	P/N: Refill	Refill-	P/N: New	New-Price	P/N: Refill	Refill-
	Length x ID	€ea.	Length x ID	Price	Length x ID	€ea.	Length x ID	Price
	125x3 mm		125x3 mm	€ea.	250x3 mm		250x3 mm	€ea.
Multospher PSM	583379	204.00	530379	177.00	583879	266.00	530879	238.00
Multospher 100 RP 18-5 FBS	583378	204.00	530378	177.00	583878	266.00	530878	238.00
Multospher PAH-III	58397012	289.00	53097012	262.00	583970	463.00	530970	435.00
4 mm ID	P/N: New	New-Price	P/N: Refill	Refill-	P/N: New	New-Price	P/N: Refill	Refill-
	Length x ID	€ea.	Length x ID	Price	Length x ID	€ea.	Length x ID	Price
	125x4 mm		125x4 mm	€ea.	250x4 mm		250x4 mm	€ea.
Multospher PSM	584379	191.00	540379	166.00	584879	251.00	540879	224.00
Multospher 100 RP 18-5 FBS	584378	191.00	540378	166.00	584878	251.00	540878	224.00
Multospher PAH-III	58497012	246.00	54097012	221.00	584970	379.00	540970	352.00
4,6 mm ID	P/N: New	New-Price	P/N: Refill	Refill-	P/N: New	New-Price	P/N: Refill	Refill-
	Length x ID	€ea.	Length x ID	Price	Length x ID	€ea.	Length x ID	Price
	125x4.6 mm		125x4.6 mm	€ea.	250x4.6 mm		250x4.6 mm	€ea.
Multospher PSM	586379	213.00	546379	187.00	586879	295.00	546879	267.00
Multospher 100 RP 18-5 FBS	586378	213.00	546378	187.00	586878	295.00	546878	267.00
Multospher PAH-III	58697012	295.00	54697012	269.00	586970	463.00	546970	435.00

Triazines on Multospher RP-PSM:

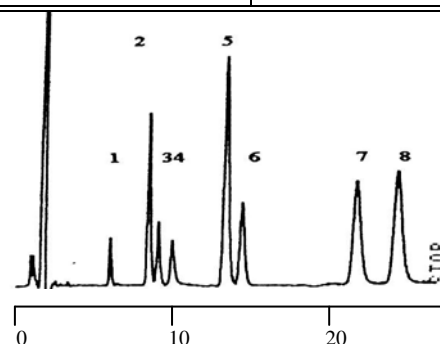
Column: 250 x 4 mm (P/N 584879)

mob. phase: water : acetonitrile (58 : 42)

Flow: 1 ml/min

Detector: UV, 240 nm

1. Simazin
2. Symetrin
3. Atrazin
4. Prometon
5. Ametryn
6. Propazin
7. Prometryn
8. Terbutryn



16 PAH's on Multospher PAH-III:

Column: 250 x 4 mm (P/N 584970)

mob. phase: A: water, B: acetonitrile

Gradient: t = 0min, B = 55%

t = 2min, B = 55%

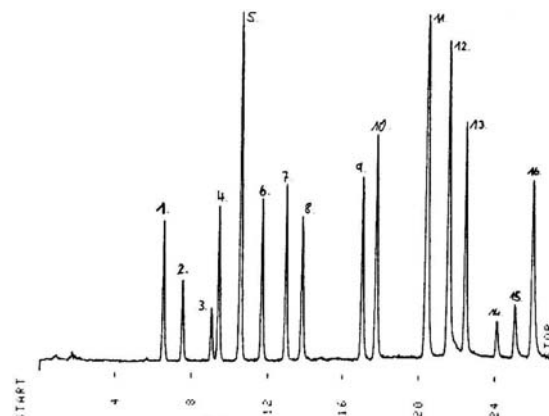
t = 20min, B = 100%

t = 30 min, B = 100%

Flow: 1 ml/min

Detector: UV, 254 nm

1. Naphthalene
2. Acenaphthene
3. Fluorene
4. Phenanthrene
5. Anthracene
6. Fluoranthene
7. Pyrene
8. Benz(a)anthracene
9. Chrysene
10. Benz(e)pyrene
11. Benz(b)fluoranthene
12. Benz(k)fluoranthene
13. Benz(a)pyrene
14. Dibenz(ah)anthracene
15. Benz(ghi)perylene
16. Indeno(1,2,3cd)pyrene



Multospher[®] Cation

This silica based ion exchange material enables the analysis of alkali ions, earth alkali ions and ammonia in a single analysis. An additional application is the separation of ethanolamines. Following aqueous mixtures are commonly used as mobile phase: ascorbic acid / phosphoric acid, ascorbic acid / oxalic acid, citric acid / dipicolinic acid, tartaric acid / dipicolinic acid. Using a conductivity detector cations can be found up to the ppb-region.

10x4 mm Cartridge (1 pc)		10x4 mm Cartridges (3 pcs)		20x4 mm Cartridge (1 pc)		20x4 mm Cartridges (3 pcs)			
558405-976	44.00 €	5583406-976	120.00 €	558401-976	59.00 €	5583402-976	162.00 €		
short columns		17 x 4 mm (New)		17 x 4 mm (Refill)		17 x 4.6 mm (New)		17 x 4.6 mm (Refill)	
		517401-976	93.00	514401-976	68.00	517001-976	105.00	514001-976	80.00
4 mm ID		P/N: New	New-Price	P/N: Refill	Refill-Price	P/N: New	New-Price	P/N: Refill	Refill-Price
		Length x ID	€ea.	Length x ID	€ea.	Length x ID	€ea.	Length x ID	€ea.
		100x4 mm		100x4 mm		125x4 mm		125x4 mm	
Multospher Cation		58497610	398.00	54097610	373.00	584976	470.00	540976	445.00
4.6 mm ID		P/N: New	New-Price	P/N: Refill	Refill-Price	P/N: New	New-Price	P/N: Refill	Refill-Price
		Length x ID	€ea.	Length x ID	€ea.	Length x ID	€ea.	Length x ID	€ea.
		100x4.6 mm		100x4.6 mm		125x4.6 mm		125x4.6 mm	
Multospher Cation		58697610	492.00	54697610	466.00	586976	588.00	546976	562.00

Cations on Multospher

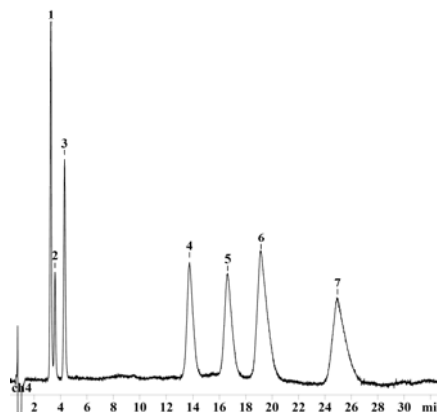
1. Na⁺
2. NH₄⁺
3. K⁺
4. Mg²⁺
5. Ca²⁺
6. Sr²⁺
7. Ba²⁺

Column: **Multospher[®] Cation** (150 x 4 mm), P/N: 58497615

Mob. Phase: 0.61 mM ascorbic acid + 1.96 mM oxalic acid

Flow: 1 ml/min

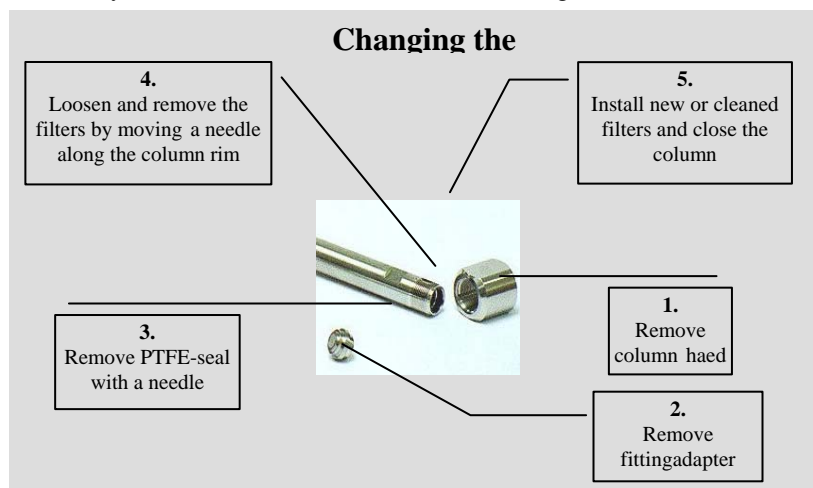
Temp: 45 °C



What to do when the pressure rises?

Caused by mechanical and chemical forces the backpressure of a column usually increases slightly. An unnaturally fast increase of the backpressure in many cases is referred to a plugging in the system. The reason for the plugging might be the column, but also the capillaries or the detector. Precipitated buffer salts, attrition from the pump, bacterial growth or adsorption of the sample matrix in the filters or the silica are some possible reasons. For localization of the blockage demount all system parts starting at the detector and going forward against the flow direction and observe if you can find a significant decrease in pressure. Clean or replace the affected part.

Guard columns (see page above) as well as filters (see page 55) are reasonable safeguards for the column. In case that the column is affected the filter system at the column entrance can be changed as described below:



Multohyp

The specifications of the silica as well as the coating of **Multohyp** are nearly identical with these of Hypersil®. Therefore we recommend it as cost efficient alternative.

Multohyp – guard columns: For prices and explanation see page 120 and 121								
Please complement the guard column P/N with the last 4 ciphers (separated by: -) of the P/N of the corresponding 125 mm analytical column.								
For example: Multohyp ODS 5µ please add -135								
2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
Multohyp ODS-3µ	682133	186.00	680133	159.00	682233	214.00	680233	185.00
Multohyp ODS-5µ	682135	184.00	680135	157.00	682235	209.00	680235	180.00
Multohyp BDS-C18 3µ	682330	192.00	680330	165.00	682830	228.00	680830	199.00
Multohyp BDS-C18 5µ	682331	186.00	680331	159.00	682831	215.00	680831	186.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
Multohyp ODS-3µ	683133	186.00	630133	159.00	683233	244.00	630233	216.00
Multohyp ODS-5µ	683135	179.00	630135	152.00	683235	229.00	630235	201.00
Multohyp BDS-C18 3µ	683330	199.00	630330	172.00	683830	272.00	630830	244.00
Multohyp BDS-C18 5µ	683331	186.00	630331	159.00	683831	244.00	630831	216.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
Multohyp ODS-3µ	684133	218.00	640133	193.00	684233	285.00	640233	258.00
Multohyp ODS-5µ	684135	204.00	640135	179.00	684235	262.00	640235	235.00
Multohyp BDS-C18 3µ	684330	249.00	640330	224.00	684830	331.00	640830	304.00
Multohyp BDS-C18 5µ	684331	218.00	640331	193.00	684831	285.00	640831	258.00
4,6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
Multohyp ODS-3µ	686133	259.00	646133	233.00	686233	346.00	646233	318.00
Multohyp ODS-5µ	686135	237.00	646135	211.00	686235	318.00	646235	290.00
Multohyp BDS-C18 3µ	686330	298.00	646330	272.00	686830	408.00	646830	380.00
Multohyp BDS-C18 5µ	686331	259.00	646331	233.00	686831	346.00	646831	318.00

MultoKrom®

The specifications of the silica as well as the coating of **MultoKrom®** are nearly identical with these of **Kromasil®**. Therefore we recommend it as cost efficient alternative.

MultoKrom – guard columns: For prices and explanation see page 120 and 121								
Please complement the guard column P/N with the last 4 ciphers (separated by: -) of the P/N of the corresponding 125 mm analytical column.								
For example: MultoKrom 100-5 C18 please add -909								
2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
MultoKrom 100 Si-3µ	682927	220.00	680927	193.00	682929	271.00	680929	242.00
MultoKrom 100 Si-5µ	682901	210.00	680901	183.00	682911	258.00	680911	229.00
MultoKrom 100 3-C4	682953	220.00	680953	193.00	682963	271.00	680963	242.00
MultoKrom 100-5 C4	682905	210.00	680905	183.00	682915	258.00	680915	229.00
MultoKrom 100-3 C8	682926	220.00	680926	193.00	682936	271.00	680936	242.00
MultoKrom 100-5 C8	682907	210.00	680907	183.00	682917	258.00	680917	229.00
MultoKrom 100-3 C18	682928	220.00	680928	193.00	682930	271.00	680930	242.00
MultoKrom 100-5 C18	682909	210.00	680909	183.00	682919	258.00	680919	229.00
MultoKrom 100-3 C18 AQ	682959	220.00	680959	193.00	682969	271.00	680969	242.00
MultoKrom 100-5 C18 AQ	682960	210.00	680960	183.00	682970	258.00	680970	229.00
MultoKrom 100-3 BDS C18	682957	230.00	680957	203.00	682967	287.00	680967	258.00
MultoKrom 100-5 BDS C18	682958	220.00	680958	193.00	682968	273.00	680968	244.00
MultoKrom 300-5 C4	682933	210.00	680933	183.00	682934	258.00	680934	229.00
MultoKrom 300-5 C18	682937	210.00	680937	183.00	682938	258.00	680938	229.00

MultoKrom[®] Continue

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
MultoKrom 100 Si-3µ	683927	222.00	630927	195.00	683929	272.00	630929	244.00
MultoKrom 100 Si-5µ	683901	175.00	630901	148.00	683911	213.00	630911	185.00
MultoKrom 100 3-C4	683953	222.00	630953	195.00	683963	272.00	630963	244.00
MultoKrom 100-5 C4	683905	175.00	630905	148.00	683915	213.00	630915	185.00
MultoKrom 100-3 C8	683926	222.00	630926	195.00	683936	272.00	630936	244.00
MultoKrom 100-5 C8	683907	175.00	630907	148.00	683917	213.00	630917	185.00
MultoKrom 100-3 C18	683928	222.00	630928	195.00	683930	272.00	630930	244.00
MultoKrom 100-5 C18	683909	175.00	630909	148.00	683919	213.00	630919	185.00
MultoKrom 100-3 C18 AQ	683959	222.00	630959	195.00	683969	272.00	630969	244.00
MultoKrom 100-5 C18 AQ	683960	175.00	630960	148.00	683970	213.00	630970	185.00
MultoKrom 100-3 BDS C18	683957	232.00	630957	205.00	683967	288.00	630967	260.00
MultoKrom 100-5 BDS C18	683958	185.00	630958	158.00	683968	228.00	630968	200.00
MultoKrom 300-5 C4	683933	175.00	630933	148.00	683934	213.00	630934	185.00
MultoKrom 300-5 C18	683937	175.00	630937	148.00	683938	213.00	630938	185.00

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
MultoKrom 100 Si-3µ	684927	215.00	640927	190.00	684929	259.00	640929	232.00
MultoKrom 100 Si-5µ	684901	153.00	640901	128.00	684911	186.00	640911	159.00
MultoKrom 100 3-C4	684953	215.00	640953	190.00	684963	259.00	640963	232.00
MultoKrom 100-5 C4	684905	153.00	640905	128.00	684915	186.00	640915	159.00
MultoKrom 100-3 C8	684926	215.00	640926	190.00	684936	259.00	640936	232.00
MultoKrom 100-5 C8	684907	153.00	640907	128.00	684917	186.00	640917	159.00
MultoKrom 100-3 C18	684928	215.00	640928	190.00	684930	259.00	640930	232.00
MultoKrom 100-5 C18	684909	153.00	640909	128.00	684919	186.00	640919	159.00
MultoKrom 100-3 C18 AQ	684959	215.00	640959	190.00	684969	259.00	640969	232.00
MultoKrom 100-5 C18 AQ	684960	153.00	640960	128.00	684970	186.00	640970	159.00
MultoKrom 100-3 BDS C18	684957	230.00	640957	205.00	684967	274.00	640967	247.00
MultoKrom 100-5 BDS C18	684958	168.00	640958	143.00	684968	201.00	640968	174.00
MultoKrom 300-5 C4	684933	153.00	640933	128.00	684934	186.00	640934	159.00
MultoKrom 300-5 C18	684937	153.00	640937	128.00	684938	186.00	640938	159.00

4,6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
MultoKrom 100 Si-3µ	686927	235.00	646927	209.00	686929	290.00	646929	262.00
MultoKrom 100 Si-5µ	686901	167.00	646901	141.00	686911	208.00	646911	180.00
MultoKrom 100 3-C4	686953	235.00	646953	209.00	686963	290.00	646963	262.00
MultoKrom 100-5 C4	686905	167.00	646905	141.00	686915	208.00	646915	180.00
MultoKrom 100-3 C8	686926	235.00	646926	209.00	686936	290.00	646936	262.00
MultoKrom 100-5 C8	686907	167.00	646907	141.00	686917	208.00	646917	180.00
MultoKrom 100-3 C18	686928	235.00	646928	209.00	686930	290.00	646930	262.00
MultoKrom 100-5 C18	686909	167.00	646909	141.00	686919	208.00	646919	180.00
MultoKrom 100-3 C18 AQ	686959	235.00	646959	209.00	686969	290.00	646969	262.00
MultoKrom 100-5 C18 AQ	686960	167.00	646960	141.00	686970	208.00	646970	180.00
MultoKrom 100-3 BDS C18	686957	251.00	646957	225.00	686967	305.00	646967	277.00
MultoKrom 100-5 BDS C18	686958	183.00	646958	157.00	686968	223.00	646968	195.00
MultoKrom 300-5 C4	686933	167.00	646933	141.00	686934	208.00	646934	180.00
MultoKrom 300-5 C18	686937	167.00	646937	141.00	686938	208.00	646938	180.00


Do you not find your desire column in our catalog?



... maintained for many years a good relationship with a wide variety of manufacturers in the field of HPLC. For reasons of space we can not present all the available products in our catalog.

Please ask for your desire Column ...

... Service is our Power!

Inertsil®								
Description	sph/irr	Pore Size	Pore Volume	Surface Area	<u>Carbon Load</u> C8/RP8/MOS	End Capping	<u>Carbon Load</u> C18/RP18/ODS	End Capping
Inertsil Sil	sph.	150 Å	1.15 ml/g	320 m ² /g				
Inertsil C4	sph.	150 Å	1.15 ml/g	320 m ² /g	7.5%	yes		
Inertsil C8	sph.	150 Å	1.15 ml/g	320 m ² /g	10.5%	yes		
Inertsil Phenyl	sph.	150 Å	1.15 ml/g	320 m ² /g			10.0%	yes
Inertsil ODS 80 Å	sph.	80 Å	0.7 ml/g	450 m ² /g			17.5%	yes
Inertsil ODS-2	sph.	150 Å	1.15 ml/g	320 m ² /g			18.5%	yes
Inertsil ODS-3/Inertsil ODS-4	sph.	100 Å	1.05 ml/g	450 m ² /g			15.0%	yes

Abbreviation: C₄=Butyl, C₈=Octyl, Ph=Phenyl, ODS=C₁₈=Octadecyl, Sil=Silica

This is an extract from our delivery program Inertsil® of the manufacturer GL Sciences Inc. Beside the below shown examples we are able to deliver Inerstil columns in all available dimensions and with all available phases. Please ask for an offer.

2.1 mm ID	P/N: New Length x ID 150x2.1 mm	New-Price €ea.	P/N: New Length x ID 250x2.1 mm	New-Price €ea.
Inertsil Sil-150 Å 5µ	0595020-01021	454.00	0595020-01025	488.00
Inertsil C8 5µ	0595020-01221	488.00	0595020-01225	522.00
Inertsil ODS 80 Å 5µ	0595020-01621	478.00	0595020-01625	522.00
Inertsil ODS-2 5µ	0595020-01121	432.00	0595020-01125	478.00
Inertsil Phenyl 5µ	0595020-01321	488.00	0595020-01325	522.00
Inertsil C4 5µ	0595020-01421	546.00	0595020-01425	592.00
Inertsil ODS-3 5µ	0595020-01741	340.00	0595020-01742	382.00
Inertsil ODS-4 3µ	0595020-04015	472.00	0595020-04016	512.00
Inertsil ODS-4 5µ	0595020-03915	402.00	0595020-03916	444.00
3 mm ID	P/N: New Length x ID 150x3 mm	New-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.
Inertsil Sil-150 Å 5µ	0595020-01022	454.00	0595020-01026	488.00
Inertsil C8 5µ	0595020-01222	488.00	0595020-01226	522.00
Inertsil ODS 80 Å 5µ	0595020-01622	478.00	0595020-01626	522.00
Inertsil ODS-2 5µ	0595020-01122	432.00	0595020-01126	478.00
Inertsil Phenyl 5µ	0595020-01322	488.00	0595020-01326	522.00
Inertsil C4 5µ	0595020-01422	546.00	0595020-01426	592.00
Inertsil ODS-3 5µ	0595020-01751	340.00	0595020-01752	382.00
Inertsil ODS-4 3µ	0595020-04025	472.00	0595020-04026	512.00
Inertsil ODS-4 5µ	0595020-03925	402.00	0595020-03926	444.00
4 mm ID	P/N: New Length x ID 150x4 mm	New-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.
Inertsil Sil-150 Å 5µ	0595020-01023	454.00	0595020-01027	488.00
Inertsil C8 5µ	0595020-01223	488.00	0595020-01227	522.00
Inertsil ODS 80 Å 5µ	0595020-01623	478.00	0595020-01627	522.00
Inertsil ODS-2 5µ	0595020-01123	432.00	0595020-01127	478.00
Inertsil Phenyl 5µ	0595020-01323	488.00	0595020-01327	522.00
Inertsil C4 5µ	0595020-01423	546.00	0595020-01427	592.00
Inertsil ODS-3 5µ	0595020-01761	340.00	0595020-01762	382.00
Inertsil ODS-4 3µ	0595020-04035	472.00	0595020-04036	512.00
Inertsil ODS-4 5µ	0595020-03935	402.00	0595020-03936	444.00
4.6 mm ID	P/N: New Length x ID 150x4.6 mm	New-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.
Inertsil Sil-150 Å 5µ	0595020-01024	454.00	0595020-01028	488.00
Inertsil C8 5µ	0595020-01224	488.00	0595020-01228	522.00
Inertsil ODS 80 Å 5µ	0595020-01624	478.00	0595020-01628	522.00
Inertsil ODS-2 5µ	0595020-01124	432.00	0595020-01128	478.00
Inertsil Phenyl 5µ	0595020-01324	488.00	0595020-01328	522.00
Inertsil C4 5µ	0595020-01424	546.00	0595020-01428	592.00
Inertsil ODS-3 5µ	0595020-01731	340.00	0595020-01732	382.00
Inertsil ODS-4 3µ	0595020-04045	472.00	0595020-04046	512.00
Inertsil ODS-4 5µ	0595020-03945	402.00	0595020-03946	444.00

Inertsil columns are only available as **original columns of GL Sciences Inc.** Apart from the listed dimensions and phases more are available. Please contact us.

Kromasil[®]



Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End Capping	Carbon Load C18/RP18/ODS	End Capping
Kromasil	sph.	100 Å	0.9 ml/g	340 m ² /g	12 %	yes	19 %	yes

Abbreviation: C1=Methyl, C8= Octyl, C18=Octadecyl, Si=Silica, C4= Butyl

This is an extract from the delivery program of Kromasil columns. Of course you may get all columns from Eka Chemicals – AKZO NOBEL, please ask for you price.

2.1 mm ID	P/N New Length x ID 50x2.1 mm	New-Price €ea.	P/N New Length x ID 100x2.1 mm	New-Price €ea.	P/N New Length x ID 150x2.1 mm	New-Price €ea.
Kromasil 100 Si-3.5µ	05958292705	373.00	05958292710	392.00	05958292715	411.00
Kromasil 100 Si-5µ	05958290105	351.00	05958290110	362.00	05958290115	381.00
Kromasil 100-5 C4	05958290505	351.00	05958290510	362.00	05958290515	381.00
Kromasil 100-3.5 C8	05958292605	373.00	05958292610	392.00	05958292615	411.00
Kromasil 100-5 C8	05958290705	351.00	05958290710	362.00	05958290715	381.00
Kromasil 100-3.5 C18	05958292805	373.00	05958292810	392.00	05958292815	411.00
Kromasil 100-5 C18	05958290905	351.00	05958290910	362.00	05958290915	381.00

3 mm ID	P/N New Length x ID 50x3 mm	New-Price €ea.	P/N New Length x ID 150x3 mm	New-Price €ea.	P/N New Length x ID 250x3 mm	New-Price €ea.
Kromasil 100 Si-3.5µ	05958392705	373.00	05958392715	411.00	059583929	n.l.av.
Kromasil 100 Si-5µ	05958390105	351.00	05958390115	381.00	059583911	n.l.av.
Kromasil 100-5 C4	05958390505	351.00	05958390515	381.00	059583915	n.l.av.
Kromasil 100-3.5 C8	05958392605	373.00	05958392615	411.00	059583927	n.l.av.
Kromasil 100-5 C8	05958390705	351.00	05958390715	381.00	059583917	n.l.av.
Kromasil 100-3.5 C18	05958392805	373.00	05958392815	411.00	059583930	n.l.av.
Kromasil 100-5 C18	05958390905	351.00	05958390915	381.00	059583919	n.l.av.

4.6 mm ID	P/N New Length x ID 100x4.6 mm	New-Price €ea.	P/N New Length x ID 150x4.6 mm	New-Price €ea.	P/N New Length x ID 250x4.6 mm	New-Price €ea.
Kromasil 100 Si-3.5µ	05958692710	340.00	05958692715	378.00		
Kromasil 100 Si-5µ	05958690110	279.00	05958690115	311.00	059586911	345.00
Kromasil 100-5 C4	05958690510	279.00	05958690515	311.00	059586915	345.00
Kromasil 100-3.5 C8	05958692610	340.00	05958692615	378.00		
Kromasil 100-5 C8	05958690710	279.00	05958690715	311.00	059586917	345.00
Kromasil 100-3.5 C18	05958692810	340.00	05958692815	378.00		
Kromasil 100-5 C18	05958690910	279.00	05958690915	311.00	059586919	345.00

All columns above are **original manufactured by Eka Chemicals – AKZO NOBEL.**

In addition many Kromasil phases **are available in CS-Hardware.** Please ask us!

Specifications HPLC packung materials

LiChrosorb®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
LiChrosorb 60	irr.	60 Å	0,75 ml/g	500 m ² /g	-	-	-	-
LiChrosorb 100	irr.	100 Å	1,0 ml/g	300 m ² /g	9,5 %	-	16,2 %	-

Abbreviation: RP8= Octyl, RP18=Octadecyl

LiChrospher®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
LiChrospher 60	sph.	60 Å	0,95 ml/g	650 m ² /g	-	-	-	-
LiChrospher 100	sph.	100 Å	1,25 ml/g	420 m ² /g*	12,5 %	nein	21,4 %	nein
LiChrospher 100 EC	sph.	100 Å	1,25 ml/g	350 m ² /g*	13,0 %	ja	21,5 %	ja

Abbreviation: RP8= Octyl, RP18=Octadecyl, CN=Cyanopropyl, Si=Silica, NH₂=Aminopropyl, RP Select-B=Octyl especially for alkakine substances, Diol=vicinale Hydroxyl-Funktion, EC=Endcapped

*Lichrospher 100 Si = 420 m²/g, modified: 350 m²/g

NUCLEOSIL®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
NUCLEOSIL 100	sph.	100 Å	1,0 ml/g	350 m ² /g	9 %	nein	14 %	ja
NUCLEOSIL 120	sph.	120 Å	0,65 ml/g	200 m ² /g	7 %	nein	11 %	ja
NUCLEOSIL 300	sph.	300 Å	0,8 ml/g	100 m ² /g	2 %	nein	2 %	ja

Abbreviation: OH=Diol, C₈= Octyl, C₁₈=Octadecyl, Si=Silica, C₄=Butyl, C₆H₅= Phenyl, CN=Cyanopropyl, NH₂=Aminopropyl, SA=Strong Acid/Cation exchanger, SB=Strong Basic/Anion exchanger

Partisil®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
Partisil	irr.	85 Å	0,85 ml/g	350 m ² /g	-	-	-	-
Partisil C8	irr.	85 Å	0,85 ml/g	350 m ² /g	9 %	ja	-	-
Partisil ODS	irr.	85 Å	0,85 ml/g	350 m ² /g	-	-	5 %	nein
Partisil ODS 2	irr.	85 Å	0,85 ml/g	350 m ² /g	-	-	15 %	nein
Partisil ODS 3	irr.	85 Å	0,85 ml/g	350 m ² /g	-	-	10 %	ja

Abbreviation: C8= Octyl, ODS=Octadecyl, Si=Silica, SAX= Anion exchanger r, SCX= Cation exchanger, PAC=Amino/Cyano(2:1)

PRP

Description	Material	Size	Pore Volume	Support material	Exchange capacity
PRP-1	RP-Phase	5µ; 10 µm	100 Å	PS-DVB	
PRP-X100	Anion exchanger	10 µm	100 Å	PS-DVB with Trimethyl-Ammonium-Exchanger	0,19 meq/g
PRP-X200	Cation exchanger	10 µm	100 Å	PS-DVB with Sulfonate - Eschanger	0,035 meq/g

Abbreviation: PS-DVB=Polystyroidivenylbenzol

Sphere-Image®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
Sphere-Image ODS 1	sph.	80 Å	0,5 ml/g	220 m ² /g	-	-	7 %	nein
Sphere-Image ODS 2	sph.	80 Å	0,5 ml/g	220 m ² /g	-	-	12 %	ja

Abbreviation: C₁=Methyl, C₈= Octyl, C₁₈=Octadecyl, Si=Silica, C₆=Hexyl, Phe= Phenyl, CN=Cyanopropyl, NH₂=Aminopropyl, SCX= Cation exchanger, SAX= Anion exchanger

Superspher®

Description	sph/irr	Pore Size	Pore Volume	Surface Area	Carbon Load C8/RP8/MOS	End capping	Carbon Load C18/RP18/ODS	End capping
Superspher 60	sph.	60 Å	0,95 ml/g	650 m ² /g	12,5 %	nein	-	-
Superspher 60 EC	sph.	60 Å	0,95 ml/g	650 m ² /g	12,5 %	ja	-	-
Superspher 100	sph.	100 Å	1,25 ml/g	420 m ² /g*	-	-	21,5 %	nein
Superspher 100 EC	sph.	100 Å	1,25 ml/g	350 m ² /g*	-	-	21,5 %	ja

Abbreviation: RP₈= Octyl, RP₁₈=Octadecyl, Si=Silica, NH₂=Aminopropyl, RP Select-B=Octyl especially for alkakine substances, EC=Endcapped

*Superspher 100 Si = 420 m²/g, modified: 350 m²/g

LiChrosorb®

This is an extract from our delivery programme LiChrosorb of the manufacturer Merck.

If you need a packing material in an other column dimension as shown below, please contact us.

We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
LiChrosorb Si 60-5µ	582143	202.00	580143	175.00	582243	261.00	580243	232.00
LiChrosorb RP 8-5µ	582140	202.00	580140	175.00	582240	261.00	580240	232.00
LiChrosorb RP 18-5µ	582145	202.00	580145	175.00	582245	261.00	580245	232.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
LiChrosorb Si 60-5µ	583143	183.00	530143	156.00	583243	237.00	530243	209.00
LiChrosorb RP 8-5µ	583140	183.00	530140	156.00	583240	237.00	530240	209.00
LiChrosorb RP 18-5µ	583145	183.00	530145	156.00	583245	237.00	530245	209.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
LiChrosorb Si 60-5µ	584143	176.00	540143	151.00	584243	228.00	540243	201.00
LiChrosorb Si 100-5µ	584440	176.00	540440	151.00	584640	228.00	540640	201.00
LiChrosorb Si 100-10µ	584442	176.00	540442	151.00	584642	228.00	540642	201.00
LiChrosorb RP 8-5µ	584140	176.00	540140	151.00	584240	228.00	540240	201.00
LiChrosorb RP 8-7µ	584141	176.00	540141	151.00	584241	228.00	540241	201.00
LiChrosorb RP 18-5µ	584145	176.00	540145	151.00	584245	228.00	540245	201.00
LiChrosorb RP 18-10µ	584147	176.00	540147	151.00	584247	228.00	540247	201.00
LiChrosorb NH2-10µ	584545	176.00	540545	151.00	584745	228.00	540745	201.00
LiChrosorb CN-5µ	584443	176.00	540443	151.00	584643	228.00	540643	201.00
LiChrosorb Diol-5µ	584446	176.00	540446	151.00	584646	228.00	540646	201.00
LiChrosorb Diol-10µ	584448	176.00	540448	151.00	584648	228.00	540648	201.00
4,6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
LiChrosorb Si 60-5µ	586143	197.00	546143	171.00	586243	269.00	546243	241.00
LiChrosorb Si 100-5µ	586440	197.00	546440	171.00	586640	269.00	546640	241.00
LiChrosorb Si 100-10µ	586442	197.00	546442	171.00	586642	269.00	546642	241.00
LiChrosorb RP 8-5µ	586140	197.00	546140	171.00	586240	269.00	546240	241.00
LiChrosorb RP 8-7µ	586141	197.00	546141	171.00	586241	269.00	546241	241.00
LiChrosorb RP 18-5µ	586145	197.00	546145	171.00	586245	269.00	546245	241.00
LiChrosorb RP 18-10µ	586147	197.00	546147	171.00	586247	269.00	546247	241.00
LiChrosorb NH2-10µ	586545	197.00	546545	171.00	586745	269.00	546745	241.00
LiChrosorb CN-5µ	586443	197.00	546443	171.00	586643	269.00	546643	241.00
LiChrosorb Diol-5µ	586446	197.00	546446	171.00	586646	269.00	546646	241.00
LiChrosorb Diol-10µ	586448	197.00	546448	171.00	586648	269.00	546648	241.00

All LiChrosorb phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering *LiChrosorb* guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: LiChrosorb RP18-5µ please complete with -145

Prices and declaration see page 120 and 121.

You find a choice of **semipreparative and preparative columns** on page 152.

LiChroCART-/manu-CART- Cartridge system



Cartridges with lengths of 125 and 250 mm are suitable for the LiChroCART- or manu-CART-system and they are available from CS as well **New** or as **Refill** cartridges; of course not only with LiChrosorb, LiChrospher and Superspher, but also with all packing materials, you find in our catalog on page 124-132, and page 140-144.

You order at the same price of the corresponding CS column with the appendix -081 behind the P/N e.g., 5841272-081 for a LiChroCart cartridge 250 x 4.0 mm with MultoHigh 100 RP 18-5µm

LiChrospher®

This is an extract from our delivery program LiChrospher of the manufacturer Merck.
If you need a packing material in an other column dimension as shown below, please contact us.
We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
LiChrospher 60 Si-5µ	582343	248.00	580343	221.00	582843	270.00	580843	241.00
LiChrospher 100 RP 8-5µ	582044	248.00	580044	221.00	582944	270.00	580944	241.00
LiChrospher 100 RP 18-5µ	582046	248.00	580046	221.00	582946	270.00	580946	241.00
LiChrospher 100 RP 8-5µ EC	582449	248.00	580449	221.00	582649	270.00	580649	241.00
LiChrospher 100 RP 18-5µ EC	582549	248.00	580549	221.00	582749	270.00	580749	241.00
LiChrospher 60 RP Select B-5µ	582541	248.00	580541	221.00	582741	291.00	580741	262.00

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
LiChrospher 60 Si-5µ	583343	179.00	530343	152.00	583843	237.00	530843	209.00
LiChrospher 100 RP 8-5µ	583044	179.00	530044	152.00	583944	237.00	530944	209.00
LiChrospher 100 RP 18-5µ	583046	179.00	530046	152.00	583946	237.00	530946	209.00
LiChrospher 100 RP 8-5µ EC	583449	179.00	530449	152.00	583649	237.00	530649	209.00
LiChrospher 100 RP 18-5µ EC	583549	179.00	530549	152.00	583749	237.00	530749	209.00
LiChrospher 60 RP Select B-5µ	583541	193.00	530541	166.00	583741	271.00	530741	243.00

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
LiChrospher 60 Si-5µ	584343	181.00	540343	156.00	584843	251.00	540843	224.00
LiChrospher 100 RP 8-5µ	584044	185.00	540044	160.00	584944	262.00	540944	235.00
LiChrospher 100 RP 18-5µ	584046	185.00	540046	160.00	584946	262.00	540946	235.00
LiChrospher 100 RP 8-5µ EC	584449	185.00	540449	160.00	584649	262.00	540649	235.00
LiChrospher 100 RP 18-5µ EC	584549	185.00	540549	160.00	584749	262.00	540749	235.00
LiChrospher 100 NH2-5µ	584346	185.00	540346	160.00	584846	262.00	540846	235.00
LiChrospher 100 Diol-5µ	584345	185.00	540345	160.00	584845	262.00	540845	235.00
LiChrospher 100 CN-5µ	584540	185.00	540540	160.00	584740	262.00	540740	235.00
LiChrospher 60 RP Select B-5µ	584541	210.00	540541	185.00	584741	306.00	540741	279.00

4.6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
LiChrospher 60 Si-5µ	586343	210.00	546343	184.00	586843	304.00	546843	276.00
LiChrospher 100 RP 8-5µ	586044	217.00	546044	191.00	586944	319.00	546944	291.00
LiChrospher 100 RP 18-5µ	586046	217.00	546046	191.00	586946	319.00	546946	291.00
LiChrospher 100 RP 8-5µ EC	586449	217.00	546449	191.00	586649	319.00	546649	291.00
LiChrospher 100 RP 18-5µ EC	586549	217.00	546549	191.00	586749	319.00	546749	291.00
LiChrospher 100 NH2-5µ	586346	217.00	546346	191.00	586846	319.00	546846	291.00
LiChrospher 100 Diol-5µ	586345	217.00	546345	191.00	586845	319.00	546845	291.00
LiChrospher 100 CN-5µ	586540	217.00	546540	191.00	586740	319.00	546740	291.00
LiChrospher 60 RP Select B-5µ	586541	250.00	546541	224.00	586741	377.00	546741	349.00

All LiChrospher phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering *LiChrospher* guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: LiChrospher 100 RP18-5µ please complete with -046

Prices and declaration see page 120 and 121.

You find a choice of **semipreparative and preparative columns** on page 152.



NUCLEOSIL®

This is an extract from our delivery program NUCLEOSIL of the manufacturer Macherey-Nagel. If you need a packing material in an other column dimension as shown below, please contact us. We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill-Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill-Price €ea.
NUCLEOSIL 100-5 C 18	582104	298.00	580104	271.00	582204	373.00	580204	344.00
NUCLEOSIL 120-5 C 18	40582111	298.00	40580111	271.00	40582211	373.00	40580211	344.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill-Price €ea.
NUCLEOSIL 100-5 C 8	583101	254.00	530101	227.00	583201	311.00	530201	283.00
NUCLEOSIL 100-3 C 18	583421	372.00	530421	345.00	583621	428.00	530621	400.00
NUCLEOSIL 100-5 C 18	583104	254.00	530104	227.00	583204	311.00	530204	283.00
NUCLEOSIL 100-5 C18 AB	583301	372.00	530301	345.00	583801	428.00	530801	400.00
NUCLEOSIL 120-3 C 18	40583107	372.00	40530107	345.00	40583207	428.00	40530207	400.00
NUCLEOSIL 120-5 C 18	40583111	254.00	40530111	227.00	40583211	311.00	40530211	283.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill-Price €ea.
NUCLEOSIL 100 Si-5µ	584126	254.00	540126	229.00	584226	311.00	540226	284.00
NUCLEOSIL 100-5 C 8	584101	254.00	540101	229.00	584201	311.00	540201	284.00
NUCLEOSIL 100-3 C 18	584421	372.00	540421	347.00	584621	423.00	540621	396.00
NUCLEOSIL 100-5 C 18	584104	254.00	540104	229.00	584204	311.00	540204	284.00
NUCLEOSIL 100-5 C18 AB	584301	372.00	540301	347.00	584801	423.00	540801	396.00
NUCLEOSIL 100-5 CN	584514	254.00	540514	229.00	584714	311.00	540714	284.00
NUCLEOSIL 100-5 SA	584121	268.00	540121	243.00	584221	311.00	540221	284.00
NUCLEOSIL 120-3 C 18	40584107	372.00	40540107	347.00	40584207	423.00	40540207	396.00
NUCLEOSIL 120-5 C 18	40584111	254.00	40540111	229.00	40584211	311.00	40540211	284.00
NUCLEOSIL 300-5 C 4	40584521	254.00	40540521	229.00	40584721	311.00	40540721	284.00
4,6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill-Price €ea.
NUCLEOSIL 100 Si-5µ	586126	268.00	546126	242.00	586226	334.00	546226	306.00
NUCLEOSIL 100-5 C 8	586101	268.00	546101	242.00	586201	334.00	546201	306.00
NUCLEOSIL 100-3 C 18	586421	387.00	546421	361.00	586621	445.00	546621	417.00
NUCLEOSIL 100-5 C 18	586104	268.00	546104	242.00	586204	334.00	546204	306.00
NUCLEOSIL 100-5 C18 AB	586301	387.00	546301	361.00	586801	445.00	546801	417.00
NUCLEOSIL 100-7 C ₆ H ₅	586513	268.00	546513	242.00	586713	334.00	546713	306.00
NUCLEOSIL 100-5 CN	586514	268.00	546514	242.00	586714	334.00	546714	306.00
NUCLEOSIL 100-5 NH ₂	586120	268.00	546120	242.00	586220	334.00	546220	306.00
NUCLEOSIL 100-5 SA	586121	274.00	546121	248.00	586221	336.00	546221	308.00
NUCLEOSIL 100-10 SA	586122	274.00	546122	248.00	586222	336.00	546222	308.00
NUCLEOSIL 100-5 SB	586123	274.00	546123	248.00	586223	336.00	546223	308.00
NUCLEOSIL 120 Si-5µ	40586118	268.00	40546118	242.00	40586218	334.00	40546218	306.00
NUCLEOSIL 120-5 C 8	40586108	268.00	40546108	242.00	40586208	334.00	40546208	306.00
NUCLEOSIL 120-3 C 18	40586107	387.00	40546107	361.00	40586207	445.00	40546207	417.00
NUCLEOSIL 120-5 C 18	40586111	268.00	40546111	242.00	40586211	334.00	40546211	306.00
NUCLEOSIL 120-7 CN	40586519	268.00	40546519	242.00	40586719	334.00	40546719	306.00
NUCLEOSIL 300-5 C 4	40586521	274.00	40546521	248.00	40586721	342.00	40546721	314.00

All NUCLEOSIL phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering NUCLEOSIL guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: NUCLEOSIL 100-5 C18 please complete with -104

Prices and declaration see page 120 and 121.

NUCLEOSIL® Original-Columns of Company Macherey-Nagel

This is an extract from our delivery program NUCLEOSIL of the manufacturer Macherey-Nagel. If you need a packing material in an other column dimension as shown below, please contact us. We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.
NUCLEOSIL 100-5 C 18	085720002.20	313.00	085720014.20	390.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.
NUCLEOSIL 100-5 C 18	085720002.30	267.00	085720014.30	326.00
NUCLEOSIL 100-5 C18 AB	085720935.30	389.00	085720936.30	441.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.
NUCLEOSIL 100-5 C8	085720001.40	267.00	085720013.40	326.00
NUCLEOSIL 100-3 C 18	085720150.40	389.00	085720133.40	441.00
NUCLEOSIL 100-5 C 18	085720002.40	267.00	085720014.40	326.00
NUCLEOSIL 100-5 C18 AB	085720935.40	389.00	085720936.40	441.00
NUCLEOSIL 100-5 CN			085720090.40	326.00
NUCLEOSIL 100-5 SA	085720709.40	282.00	085720079.40	326.00
NUCLEOSIL 120-3 C 18	085720040.40	389.00	085720055.40	441.00
NUCLEOSIL 120-5 C 18	085720051.40	267.00	085720041.40	326.00
NUCLEOSIL 300-5 C4	085720901.40	267.00	085720059.40	326.00
4,6 mm ID	P/N: New Length x ID 125x4.6 mm	New-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.
NUCLEOSIL 100-5 C8	085720001.46	282.00	085720013.46	345.00
NUCLEOSIL 100-3 C 18	085720150.46	404.00	085720133.46	464.00
NUCLEOSIL 100-5 C 18	085720002.46	282.00	085720014.46	345.00
NUCLEOSIL 100-5 C18 AB	085720935.46	404.00	085720936.46	464.00
NUCLEOSIL 100-7 C ₆ H ₅			085720019.46	345.00
NUCLEOSIL 100-5 CN			085720090.46	345.00
NUCLEOSIL 100-5 NH ₂			085720095.46	345.00
NUCLEOSIL 100-5 SA	085720709.46	282.00	085720079.46	345.00
NUCLEOSIL 100-10 SA			085720028.46	345.00
NUCLEOSIL 100-5 SB	085720183.46	282.00	085720996.46	345.00
NUCLEOSIL 120-5 C8	085720050.46	282.00	085720052.46	345.00
NUCLEOSIL 120-3 C 18	085720040.46	404.00	085720055.46	464.00
NUCLEOSIL 120-5 C 18	085720051.46	282.00	085720041.46	345.00
NUCLEOSIL 120-7 CN			085720057.46	345.00
NUCLEOSIL 300-5 C4			085720059.46	345.00

Original – NUCLEOSIL – Precolumns on request.

You need the Original-Precolumn Holder of Company Macherey-Nagel.

ProntoSIL®

Specifications:

Description	Pore Size	Surface Area	Si	Carbon Load										
				ace-EPS	AQ	AQ Plus	C18 H	C18 SH	C8 SH	Phenyl	C 1	C 4	C 30	
ProntoSIL	60 Å	450 m ² /g	ja				18.5%				18.5%			
ProntoSIL	120 Å	300 m ² /g	ja	18.5%	14%	17%	18.5%	17%	10%	10%	3%	5.5%	25%	
ProntoSIL	200 Å	200 m ² /g	ja	12.5%	9%		11%		7%			5.5%	20%	
ProntoSIL	300 Å	100 m ² /g	ja	8.5%			7%		4%			2.5%	13%	

Short description of the phases:

- Si: Ultra high pure silica for normal phase or exclusion chromatography
 ace-EPS: RP Phase with an embedded polar group in the hydrophobic C18 chain
 AQ: RP Phase for the use of high aqueous medium
 AQ Plus: RP Phase for the use of high aqueous medium, stable up to pH 1
 C8 SH: Octyl Phase (endcapped), stable up to pH 1
 C18 H: Octadecyl Phase (endcapped)
 C18 SH: Octadecyl Phase (endcapped) with maximum coating density, stable up to pH 1
 Amino E: Aminopropyl Phase, endcapped
 Amino H: Aminopropyl Phase, more hydrophobic, especially for analysis of sugars in RP - mode

ProntoSIL® – Analytical Columns

This is an extract from our delivery programme ProntoSIL of the manufacturer Bischoff.
 If you need a packing material in an other column dimension as shown below, please contact us.
 We will send directly an offer.

Stationary Phase	125x2 mm				250x2 mm			
	P/N New:	€ea.	P/N Refill:	€ea.	P/N New:	€ea.	P/N Refill:	€ea.
120-5-C18 H	58212PR05F21	208.00	58012PR05F21	183.00	58225PR05F21	303.00	58025PR05F21	278.00
120-5-C18 AQ	58212PR05F24	208.00	58012PR05F24	183.00	58225PR05F24	303.00	58025PR05F24	278.00
120-5-C18 AQ PLUS	58212PR05F25	208.00	58012PR05F25	183.00	58225PR05F25	303.00	58025PR05F25	278.00
120-3-C18 ace-EPS	58212PR03F29	302.00	58012PR03F29	277.00	58225PR03F29	397.00	58025PR03F29	372.00
120-5-C18 ace-EPS	58212PR05F29	262.00	58012PR05F29	237.00	58225PR05F29	356.00	58025PR05F29	331.00
120-5-C18 SH	58212PR05F19	208.00	58012PR05F19	183.00	58225PR05F19	303.00	58025PR05F19	278.00
120-3-CN	58212PR03F55	248.00	58012PR03F55	223.00	58225PR03F55	344.00	58025PR03F55	319.00

Stationary Phase	125x3 mm				250x3 mm			
	P/N New:	€ea.	P/N Refill:	€ea.	P/N New:	€ea.	P/N Refill:	€ea.
60-5 Si	58312PR05C00	198.00	53012PR05C00	173.00	58325PR05C00	292.00	53025PR05C00	267.00
120-5 Si	58312PR05F00	198.00	53012PR05F00	173.00	58325PR05F00	292.00	53025PR05F00	267.00
300-5-C4	58312PR05K05	265.00	53012PR05K05	247.00	58325PR05K05	426.00	53025PR05K05	401.00
120-5-C8 SH	58312PR05F09	208.00	53012PR05F09	183.00	58325PR05F09	303.00	53025PR05F09	278.00
120-3-C18 H	58312PR03F21	248.00	53012PR03F21	223.00	58325PR03F21	344.00	53025PR03F21	319.00
120-5-C18 H	58312PR05F21	208.00	53012PR05F21	183.00	58325PR05F21	303.00	53025PR05F21	278.00
120-3-C18 AQ	58312PR03F24	248.00	53012PR03F24	223.00	58325PR03F24	344.00	53025PR03F24	319.00
120-5-C18 AQ	58312PR05F24	208.00	53012PR05F24	183.00	58325PR05F24	303.00	53025PR05F24	278.00
120-5-C18 AQ PLUS	58312PR05F25	208.00	53012PR05F25	183.00	58325PR05F25	303.00	53025PR05F25	278.00
120-3-C18 ace-EPS	58312PR03F29	302.00	53012PR03F29	277.00	58325PR03F29	397.00	53025PR03F29	372.00
120-5-C18 ace-EPS	58312PR05F29	262.00	53012PR05F29	237.00	58325PR05F29	356.00	53025PR05F29	331.00
120-5-C18 SH	58312PR05F19	208.00	53012PR05F19	183.00	58325PR05F19	303.00	53025PR05F19	278.00

ProntoSIL-precolumn cartridges,

please complete the part number with the last 5 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: ProntoSIL 120-5 C18 SH please complete with -05F19

Prices and declaration see page 120 and 121.

ProntoSIL[®] – Analytical Columns

Stationary Phase	125x4 mm				250x4 mm			
	ProntoSIL	P/N New:	€ea.	P/N Refill:	€ea.	P/N New:	€ea.	P/N Refill:
120-3 Si	58412PR03F00	248.00	54012PR03F00	223.00	58425PR03F00	344.00	54025PR03F00	319.00
120-5 Si	58412PR05F00	208.00	54012PR05F00	183.00	58425PR05F00	303.00	54025PR05F00	278.00
120-5-C1	58412PR05F01	208.00	54012PR05F01	183.00	58425PR05F01	303.00	54025PR05F01	278.00
120-5-C4	58412PR05F05	208.00	54012PR05F05	183.00	58425PR05F05	303.00	54025PR05F05	278.00
300-5-C4	58412PR05K05	265.00	54012PR05K05	247.00	58425PR05K05	426.00	54025PR05K05	401.00
120-5-Phenyl	58412PR05F11	208.00	54012PR05F11	183.00	58425PR05F11	303.00	54025PR05F11	278.00
120-5-C8 SH	58412PR05F09	208.00	54012PR05F09	183.00	58425PR05F09	303.00	54025PR05F09	278.00
120-3-C18 H	58412PR03F21	248.00	54012PR03F21	223.00	58425PR03F21	344.00	54025PR03F21	319.00
120-5-C18 H	58412PR05F21	208.00	54012PR05F21	183.00	58425PR05F21	303.00	54025PR05F21	278.00
120-5-C18 AQ	58412PR05F24	208.00	54012PR05F24	183.00	58425PR05F24	303.00	54025PR05F24	278.00
120-5C18 AQ PLUS	58412PR05F25	208.00	54012PR05F25	183.00	58425PR05F25	303.00	54025PR05F25	278.00
120-3-C18 ace-EPS	58412PR03F29	302.00	54012PR03F29	277.00	58425PR03F29	397.00	54025PR03F29	372.00
120-5-C18 ace-EPS	58412PR05F29	262.00	54012PR05F29	237.00	58425PR05F29	356.00	54025PR05F29	331.00
120-5-C18 SH	58412PR05F19	208.00	54012PR05F19	183.00	58425PR05F19	303.00	54025PR05F19	278.00
120-5-CN	58412PR05F55	208.00	54012PR05F55	183.00	58425PR05F55	303.00	54025PR05F55	278.00
120-5-Amino	58412PR05F41	208.00	54012PR05F41	183.00	58425PR05F41	303.00	54025PR05F41	278.00
120-5-Amino E	58412PR05F53	208.00	54012PR05F53	183.00	58425PR05F53	303.00	54025PR05F53	278.00
120-5-Amino H	58412PR05F42	208.00	54012PR05F42	183.00	58425PR05F42	303.00	54025PR05F42	278.00
120-5-Diol	58412PR05F57	208.00	54012PR05F57	183.00	58425PR05F57	303.00	54025PR05F57	278.00

Stationary Phase	125x4.6 mm				250x4.6 mm			
	ProntoSIL	P/N New:	€ea.	P/N Refill:	€ea.	P/N New:	€ea.	P/N Refill:
60-3 Si	58612PR03C00	248.00	54612PR03C00	223.00	58625PR03C00	344.00	54625PR03C00	319.00
120-3 Si	58612PR03F00	248.00	54612PR03F00	223.00	58625PR03F00	344.00	54625PR03F00	319.00
60-5 Si	58612PR05C00	208.00	54612PR05C00	183.00	58625PR05C00	303.00	54625PR05C00	278.00
120-5 Si	58612PR05F00	208.00	54612PR05F00	183.00	58625PR05F00	303.00	54625PR05F00	278.00
120-3-C1	58612PR03F01	248.00	54612PR03F01	223.00	58625PR03F01	344.00	54625PR03F01	319.00
120-5-C1	58612PR05F01	208.00	54612PR05F01	183.00	58625PR05F01	303.00	54625PR05F01	278.00
120-5-C4	58612PR05F05	208.00	54612PR05F05	183.00	58625PR05F05	303.00	54625PR05F05	278.00
300-5-C4	58612PR05K05	265.00	54612PR05K05	247.00	58625PR05K05	426.00	54625PR05K05	401.00
120-3-Phenyl	58612PR03F11	248.00	54612PR03F11	223.00	58625PR03F11	344.00	54625PR03F11	319.00
120-5-Phenyl	58612PR05F11	208.00	54612PR05F11	183.00	58625PR05F11	303.00	54625PR05F11	278.00
120-3-C8 SH	58612PR03F09	248.00	54612PR03F09	223.00	58625PR03F09	344.00	54625PR03F09	319.00
120-5-C8 SH	58612PR05F09	208.00	54612PR05F09	183.00	58625PR05F09	303.00	54625PR05F09	278.00
120-3-C18 H	58612PR03F21	248.00	54612PR03F21	223.00	58625PR03F21	344.00	54625PR03F21	319.00
120-5-C18 H	58612PR05F21	208.00	54612PR05F21	183.00	58625PR05F21	303.00	54625PR05F21	278.00
120-3-C18 AQ	58612PR03F24	248.00	54612PR03F24	223.00	58625PR03F24	344.00	54625PR03F24	319.00
120-5-C18 AQ	58612PR05F24	208.00	54612PR05F24	183.00	58625PR05F24	303.00	54625PR05F24	278.00
120-5C18 AQ PLUS	58612PR05F25	208.00	54612PR05F25	183.00	58625PR05F25	303.00	54625PR05F25	278.00
120-3-C18 ace-EPS	58612PR03F29	302.00	54612PR03F29	277.00	58625PR03F29	397.00	54625PR03F29	372.00
120-5-C18 ace-EPS	58612PR05F29	262.00	54612PR05F29	237.00	58625PR05F29	356.00	54625PR05F29	331.00
120-3-C18 SH	58612PR03F19	248.00	54612PR03F19	223.00	58625PR03F19	344.00	54625PR03F19	319.00
120-5-C18 SH	58612PR05F19	208.00	54612PR05F19	183.00	58625PR05F19	303.00	54625PR05F19	278.00
120-3-CN	58612PR03F55	248.00	54612PR03F55	223.00	58625PR03F55	344.00	54625PR03F55	319.00
120-5-CN	58612PR05F55	208.00	54612PR05F55	183.00	58625PR05F55	303.00	54625PR05F55	278.00
120-3-Amino	58612PR03F41	248.00	54612PR03F41	223.00	58625PR03F41	344.00	54625PR03F41	319.00
120-5-Amino	58612PR05F41	208.00	54612PR05F41	183.00	58625PR05F41	303.00	54625PR05F41	278.00
120-5-Amino E	58612PR05F53	208.00	54612PR05F53	183.00	58625PR05F53	303.00	54625PR05F53	278.00
120-5-Amino H	58612PR05F42	208.00	54612PR05F42	183.00	58625PR05F42	303.00	54625PR05F42	278.00
120-3-Diol	58612PR03F57	248.00	54612PR03F57	223.00	58625PR03F57	344.00	54625PR03F57	319.00
120-5-Diol	58612PR05F57	208.00	54612PR05F57	183.00	58625PR05F57	303.00	54625PR05F57	278.00

You find a choice of semipreparative and preparative columns on page 152.



Partisil®

This is an extract from our delivery program Partisil of the manufacturer Whatman.

If you need a packing material in an other column dimension as shown below, please contact us.

We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill-Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill-Price €ea.
Partisil 5 C8	582150	237.00	580152	210.00	582252	288.00	580252	259.00
Partisil 10 C8	582151	237.00	580151	210.00	582251	288.00	580251	259.00
Partisil 10 ODS 2	582155	237.00	580155	210.00	582255	288.00	580255	259.00
Partisil 10 ODS 3	582158	237.00	580158	210.00	582258	288.00	580258	259.00
Partisil 10 SAX	582156	237.00	580156	210.00	582256	288.00	580256	259.00
Partisil 5 PAC	582450	237.00	580450	210.00	582650	288.00	580650	259.00
Partisil 10 PAC	582451	237.00	580451	210.00	582651	288.00	580651	259.00

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill-Price €ea.
Partisil Si-5µ	583152	236.00	530152	209.00	583252	333.00	530252	305.00
Partisil 5 C8	583150	236.00	530151	209.00	583251	333.00	530251	305.00
Partisil 10 C8	583151	236.00	530155	209.00	583255	333.00	530255	305.00
Partisil 10 ODS 2	583155	236.00	530158	209.00	583258	333.00	530258	305.00
Partisil 10 ODS 3	583158	236.00	530156	209.00	583256	333.00	530256	305.00
Partisil 10 SAX	583156	236.00	530450	209.00	583650	333.00	530650	305.00
Partisil 5 PAC	583450	236.00	530451	209.00	583651	333.00	530651	305.00
Partisil 10 PAC	583451	236.00	530152	209.00	583252	333.00	530252	305.00

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill-Price €ea.
Partisil Si-5µ	584152	278.00	540152	253.00	584252	436.00	540252	409.00
Partisil 5 C8	584150	278.00	540151	253.00	584251	436.00	540251	409.00
Partisil 10 C8	584151	278.00	540155	253.00	584255	436.00	540255	409.00
Partisil 10 ODS 2	584155	278.00	540158	253.00	584258	436.00	540258	409.00
Partisil 10 ODS 3	584158	278.00	540156	253.00	584256	436.00	540256	409.00
Partisil 10 SAX	584156	278.00	540450	253.00	584650	436.00	540650	409.00
Partisil 5 PAC	584450	278.00	540451	253.00	584651	436.00	540651	409.00
Partisil 10 PAC	584451	278.00	540152	253.00	584252	436.00	540252	409.00

4,6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill-Price €ea.
Partisil Si-5µ	586152	349.00	546152	323.00	586252	547.00	546252	519.00
Partisil 5 C8	586150	349.00	546151	323.00	586251	547.00	546251	519.00
Partisil 10 C8	586151	349.00	546155	323.00	586255	547.00	546255	519.00
Partisil 10 ODS 2	586155	349.00	546158	323.00	586258	547.00	546258	519.00
Partisil 10 ODS 3	586158	349.00	546156	323.00	586256	547.00	546256	519.00
Partisil 10 SAX	586156	349.00	546450	323.00	586650	547.00	546650	519.00
Partisil 5 PAC	586450	349.00	546451	323.00	586651	547.00	546651	519.00
Partisil 10 PAC	586451	349.00	546152	323.00	586252	547.00	546252	519.00

All Partisil phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering *Partisil* guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: Partisil 5 ODS 3 please complete with -157

Prices and declaration see page 120 and 121.

You find a choice of semipreparative and preparative columns on page 152.



Sphere-Image

This is an extract from our delivery program Sphere-Image.

If you need a packing material in another column dimension as shown below, please contact us.

We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
Sphere-Image 3 ODS 1	682193	240.00	680193	213.00	682293	291.00	680293	262.00
Sphere-Image 5 ODS 1	682191	203.00	680191	176.00	682291	267.00	680291	238.00
Sphere-Image 5 ODS 2	682195	203.00	680195	176.00	682295	267.00	680295	238.00

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
Sphere-Image Si 5µ	683198	177.00	630198	150.00	683298	230.00	630298	202.00
Sphere-Image 3 C 8	683197	192.00	630197	165.00	683297	259.00	630297	231.00
Sphere-Image 3 ODS 1	683193	192.00	630193	165.00	683293	259.00	630293	231.00
Sphere-Image 5 ODS 1	683191	186.00	630191	159.00	683291	244.00	630291	216.00
Sphere-Image 5 ODS 2	683195	186.00	630195	159.00	683295	244.00	630295	216.00
Sphere-Image 5 CN	683495	186.00	630495	159.00	683695	244.00	630695	216.00
Sphere-Image 5 SCX	683394	186.00	630394	159.00	683894	244.00	630894	216.00

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
Sphere-Image Si 5µ	684198	192.00	640198	167.00	684298	236.00	640298	209.00
Sphere-Image 5 C 6	684493	204.00	640493	179.00	684693	268.00	640693	241.00
Sphere-Image 3 C 8	684197	219.00	640197	194.00	684297	292.00	640297	265.00
Sphere-Image 3 ODS 1	684193	219.00	640193	194.00	684293	292.00	640293	265.00
Sphere-Image 5 ODS 1	684191	204.00	640191	179.00	684291	268.00	640291	241.00
Sphere-Image 5 ODS 2	684195	204.00	640195	179.00	684295	268.00	640295	241.00
Sphere-Image 5 CN	684495	204.00	640495	179.00	684695	268.00	640695	241.00
Sphere-Image 5 SCX	684394	204.00	640394	179.00	684894	268.00	640894	241.00
Sphere-Image 10 SCX	684395	204.00	640395	179.00	684895	268.00	640895	241.00

4,6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
Sphere-Image Si 5µ	686198	211.00	646198	185.00	686298	283.00	646298	255.00
Sphere-Image 5 C 1	686491	239.00	646491	213.00	686691	318.00	646691	290.00
Sphere-Image 5 C 6	686493	239.00	646493	213.00	686693	318.00	646693	290.00
Sphere-Image 3 C 8	686197	261.00	646197	235.00	686297	356.00	646297	328.00
Sphere-Image 3 ODS 1	686193	261.00	646193	235.00	686293	356.00	646293	328.00
Sphere-Image 5 ODS 1	686191	239.00	646191	213.00	686291	318.00	646291	290.00
Sphere-Image 5 ODS 2	686195	239.00	646195	213.00	686295	318.00	646295	290.00
Sphere-Image 10 ODS 2	686196	239.00	646196	213.00	686296	318.00	646296	290.00
Sphere-Image 5 CN	686495	239.00	646495	213.00	686695	318.00	646695	290.00
Sphere-Image 3 NH2	686496	261.00	646496	235.00	686696	356.00	646696	328.00
Sphere-Image 3 Phe	686498	261.00	646498	235.00	686698	356.00	646698	328.00
Sphere-Image 5 Phe	686499	239.00	646499	213.00	686699	318.00	646699	290.00
Sphere-Image 5 SAX	686590	239.00	646590	213.00	686790	318.00	646790	290.00
Sphere-Image 10 SAX	686591	239.00	646591	213.00	686791	318.00	646791	290.00
Sphere-Image 5 SCX	686394	239.00	646394	213.00	686894	318.00	646894	290.00
Sphere-Image 10 SCX	686395	239.00	646395	213.00	686895	318.00	646895	290.00

All Sphere-Image phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering *Sphere-Image* guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: Sphere-Image 5 ODS 2 please complete with –195

Prices and declaration see page 120 and 121.

Superspher®

This is an extract from our delivery program Superspher of the manufacturer Merck.

If you need a packing material in another column dimension as shown below, please contact us.

We will send directly an offer.

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill- Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill- Price €ea.
Superspher 60 Si-4μ	582040	245.00	580040	218.00	582940	267.00	580940	238.00
Superspher 60 RP 8-4μ	582041	245.00	580041	218.00	582941	267.00	580941	238.00
Superspher 100 RP 18-4μ	582042	245.00	580042	218.00	582942	267.00	580942	238.00
Superspher 60 RP 8-4μ EC	582047	245.00	580047	218.00	582947	267.00	580947	238.00
Superspher 100 RP 18-4μ EC	582048	245.00	580048	218.00	582948	267.00	580948	238.00
Superspher 60 RP Select B-4μ	582043	245.00	580043	218.00	582943	267.00	580943	238.00

3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill- Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill- Price €ea.
Superspher 60 Si-4μ	583040	195.00	530040	168.00	583940	271.00	530940	243.00
Superspher 60 RP 8-4μ	583041	195.00	530041	168.00	583941	271.00	530941	243.00
Superspher 100 RP 18-4μ	583042	195.00	530042	168.00	583942	271.00	530942	243.00
Superspher 60 RP 8-4μ EC	583047	195.00	530047	168.00	583947	271.00	530947	243.00
Superspher 100 RP 18-4μ EC	583048	195.00	530048	168.00	583948	271.00	530948	243.00
Superspher 60 RP Select B-4μ	583043	217.00	530043	190.00	583943	301.00	530943	273.00

4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill- Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill- Price €ea.
Superspher 60 Si-4μ	584040	178.00	540040	153.00	584940	253.00	540940	226.00
Superspher 60 RP 8-4μ	584041	194.00	540041	169.00	584941	279.00	540941	252.00
Superspher 100 RP 18-4μ	584042	194.00	540042	169.00	584942	279.00	540942	252.00
Superspher 60 RP 8-4μ EC	584047	194.00	540047	169.00	584947	279.00	540947	252.00
Superspher 100 RP 18-4μ EC	584048	194.00	540048	169.00	584948	279.00	540948	252.00
Superspher 60 RP Select B-4μ	584043	228.00	540043	202.00	584943	337.00	540943	310.00

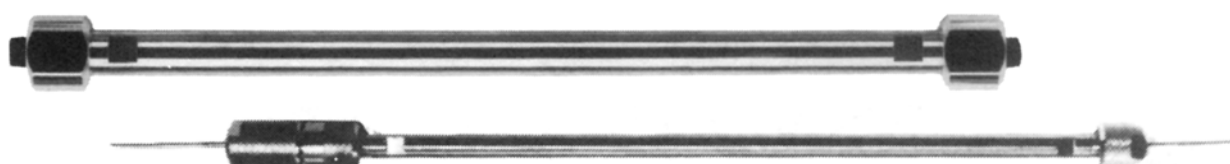
4.6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill- Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill- Price €ea.
Superspher 60 Si-4μ	586040	210.00	546040	184.00	586940	306.00	546940	278.00
Superspher 60 RP 8-4μ	586041	229.00	546041	203.00	586941	337.00	546941	309.00
Superspher 100 RP 18-4μ	586042	229.00	546042	203.00	586942	337.00	546942	309.00
Superspher 60 RP 8-4μ EC	586047	229.00	546047	203.00	586947	337.00	546947	309.00
Superspher 100 RP 18-4μ EC	586048	229.00	546048	203.00	586948	337.00	546948	309.00
Superspher 60 RP Select B-4μ	586043	273.00	546043	247.00	586943	418.00	546943	390.00

All Superspher phases which are listed at 4 mm or 4.6 mm ID can be provided in 3 mm or 2 mm ID as well.

For ordering *Superspher* guard column cartridges, please complete the guard column part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: Superspher 100 RP 18-4μ please complete with -042.

Prices and declaration see page 120 and 121.



Chirale Phases

MultoHigh[®] Chiral-AM

MultoHigh Chiral-AM is a highly versatile and efficient chiral stationary phase (CSP). It enables the solution of a vast number of chiral separation tasks.

The chiral phase is based on high quality 1000 Å spherical silica and is coated with amylose-tris(3,5-dimethylphenyl-carbamate) as well established and multiple used chiral selector.

This results in a CSP with::

- **brilliant enantio selectivity**
- **high mechanical and solvent stability**
- **good reproducibility**
- **high loadability**

Description	Dimension	P/N (New)	Price (New) €ea.	P/N (Refill)	Price (Refill) €ea.
<i>MultoHigh Chiral-AM-HR</i>	150 x 4.6 mm	586112215	834.00	546112215	808.00
	250 x 4.6 mm	5861222	1048.00	5461222	1020.00
<i>MultoHigh Chiral-AM</i>	150 x 4.6 mm	586112015	738.00	546112015	712.00
	250 x 4.6 mm	5861220	952.00	5461220	924.00
<i>MultoHigh Chiral-AM-HR-RP</i>	150 x 4.6 mm	586112315	834.00	546112315	808.00
	250 x 4.6 mm	5861223	1048.00	5461223	1020.00
<i>MultoHigh Chiral-AM-RP</i>	150 x 4.6 mm	586112115	738.00	546112115	712.00
	250 x 4.6 mm	5861221	952.00	5461221	924.00
<i>MultoHigh Chiral-AM (Prep.)</i>	250 x 10 mm	510112025	3489.00	511112025	3362.00
	250 x 20 mm	5201120	7368.00	5211120	7168.00

(*HR* = High Resolution, *RP* = Reversed Phase)

MultoHigh Chiral – guard columns

To get the full part number, please add ciphers 4 to 7 (separated by: -) of the P/N of the column with length of 150 mm.

e. g.: *MultoHigh Chiral-AM-HR* please add -1122.

10 x 4 mm Cartridge (1 pc)	10 x 4 mm Cartridges (3 pcs)	Find applicable guard column holder systems on page 119.
558405-XXXX 41.50 €	5583406-XXXX 111.90 €	

Chiral-OM

Chiral-OM is a chiral polysaccharide phase for HPLC with use of cellulose-tris(3,5-dimethylphenyl-carbamate) as chiral selector. The selector is coated on ultra high pure silica with 1000 Å pore size and 5 µm particle size.

The columns can be used for various separations and are able to separate neutral, acidic and basic racemates. Nearly 50 % of all racemic compounds can be separated with this phase.

	Dimension	P/N	Preis €ea.
<i>Chiral-OM 5µ</i>	150 x 4.6 mm	098R65.OM.S1546	953.00
	250 x 4.6 mm	098R65.OM.S2546	1108.00
<i>Guard columns Chiral-OM 5µ</i>	10 x 4 mm	098R65.OM.V0104	206.00 (5 pcs)
Find applicable guard column holder systems on page 103.			

CHIRALPAK (Daicel) IA, IB, IC, AD(-H), OD(-H), AS(-H), OJ(-H) ...

The well-known chiral HPLC columns! Chiral Technologies Europe presents a variety of chiral HPLC phases gives you the possibility to solve nearly every problem in this working field.

Prices on request

Chiral -AGP / -CBH / -HSA

These protein-based phases are the ideal complement to polysaccharide based chiral phases.

Prices on request

Carbohydrate

Organic Acid

Polymeric columns for special applications

The **Organic Acid-Resin** and **Carbohydrate-Resin** phases are based on polystyrene-divinyl benzene (PS-DVB) are designed for the separation of special compound groups. PS-DVB resins are highly selective, efficient and stable in a pH range from 0 to 14.

The main field of application of the **Carbohydrate-Resin** phases are the separation of sugar alcohols, mono- and disaccharides. As the Ca^{2+} form is predominantly used for analysis of mono-saccharides and sugar alcohols, the Pb^{2+} form is used in the field of monoe- and di-saccharides. In most cases pure water can be used as mobile phase at a working temperature of about 85 °C

The **Organic Acid-Resin** phase was developed for the separation of organic acids (e.g. in food or fermentation supernatants). Mobile phases are usually diluted acids (e. g. 50 mM H_2SO_4) at room temperature. Organic solvents are not needed. The analysis of organic acids beside sugars or sugar alcohols is usually done at higher temperatures (45-80°C). For detection RI or UV (220 nm) detectors are common.

Description	Particle Size	Ion	Pore-Ø	Resin	Capacity
Carbohydrate Ca^{2+}	10 µm	Ca^{2+}	30-40 Å	PS-DVB	1.8 meq/g
Carbohydrate Pb^{2+}	10 µm	Pb^{2+}	30-40 Å	PS-DVB	1.8 meq/g
Organic Acid	10 µm	H^+	25 Å	PS-DVB	1.8 meq/g

Guard Columns	P/N: New Length x ID 40 x 4 mm	P/N: Refill Length x ID 40 x 4 mm	P/N: New Length x ID 40 x 4.6 mm	P/N: Refill Length x ID 40 x 4.6 mm	P/N: New Length x ID 40 x 8 mm	P/N: Refill Length x ID 40 x 8 mm
Carbohydrate Ca^{2+}	554981	534981	555981	535981	548981	549981
Carbohydrate Pb^{2+}	554982	534982	555982	535982	548982	549982
Organic Acid	554980	534980	555980	535980	548980	549980
€ea.	108.40	83.40	120.30	95.30	226.00	161.00

250 mm	P/N: New Length x ID 250 x 4 mm	P/N: Refill Length x ID 250 x 4 mm	P/N: New Length x ID 250 x 4.6 mm	P/N: Refill Length x ID 250 x 4.6 mm	P/N: New Length x ID 250 x 8 mm	P/N: Refill Length x ID 250 x 8 mm
Carbohydrate Ca^{2+}	584981	540981	586981	546981	528981	529981
Carbohydrate Pb^{2+}	584982	540982	586982	546982	528982	529982
Organic Acid	584980	540980	586980	546980	528980	529980
€ea.	342.00	315.00	389.00	361.00	807.00	707.00

300 mm	P/N: New Length x ID 300 x 4 mm	P/N: Refill Length x ID 300 x 4 mm	P/N: New Length x ID 300 x 4.6 mm	P/N: Refill Length x ID 300 x 4.6 mm	P/N: New Length x ID 300 x 8 mm	P/N: Refill Length x ID 300 x 8 mm
Carbohydrate Ca^{2+}	58498130	54098130	58698130	54698130	52898130	52998130
Carbohydrate Pb^{2+}	58498230	54098230	58698230	54698230	52898230	52998230
Organic Acid	58498030	54098030	58698030	54698030	52898030	52998030
€ea.	416.00	388.00	470.00	441.00	953.00	853.00

Sugars and Sugar Alcohols on Carbohydrate Ca^{2+}

1. Maltotriose
2. Maltose
3. Lactulose
4. Glucose
5. Xylose
6. Arabinose
7. Ribitol
8. Arabitol
9. Xylitol

Column: **Carbohydrate Ca^{2+}**
(300 x 8 mm), P/N 52898130

Mob. Phase Water
Temp.: 90 °C
Flow: 0.4 ml/min
Detector: RI

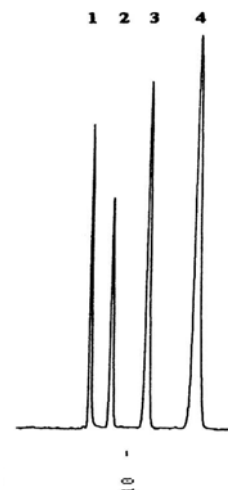


Organic Acids

1. Oxalic acid
2. Tartaric acid
3. Succinic acid
4. Fumaric acid

Säule: **Organic Acid-Resin**
(250 x 8 mm), P/N 528980

Mob. Phase H_2SO_4 (5 mM)
Temp.: 20 °C
Flow: 0.5 ml/min
Detector: UV 220 nm



PRP - Analytical Columns packed by CS-Chromatographie Service GmbH

2 mm ID	P/N: New Length x ID 125x2 mm	New-Price €ea.	P/N: Refill Length x ID 125x2 mm	Refill-Price €ea.	P/N: New Length x ID 250x2 mm	New-Price €ea.	P/N: Refill Length x ID 250x2 mm	Refill-Price €ea.
PRP-1, 5µ	582580	196.00	580580	169.00	582780	235.00	580780	206.00
PRP-1, 10µ	582581	196.00	580581	169.00	582781	235.00	580781	206.00
PRP-X100, 10µ	582582	214.00	580582	187.00	582782	271.00	580782	242.00
PRP-X200, 10µ	582584	214.00	580584	187.00	582784	271.00	580784	242.00
3 mm ID	P/N: New Length x ID 125x3 mm	New-Price €ea.	P/N: Refill Length x ID 125x3 mm	Refill-Price €ea.	P/N: New Length x ID 250x3 mm	New-Price €ea.	P/N: Refill Length x ID 250x3 mm	Refill-Price €ea.
PRP-1, 5µ	583580	236.00	530580	209.00	583780	321.00	530780	293.00
PRP-1, 10µ	583581	216.00	530581	189.00	583781	292.00	530781	264.00
PRP-X100, 10µ	583582	257.00	530582	230.00	583782	392.00	530782	364.00
PRP-X200, 10µ	583584	257.00	530584	230.00	583784	392.00	530784	364.00
4 mm ID	P/N: New Length x ID 125x4 mm	New-Price €ea.	P/N: Refill Length x ID 125x4 mm	Refill-Price €ea.	P/N: New Length x ID 250x4 mm	New-Price €ea.	P/N: Refill Length x ID 250x4 mm	Refill-Price €ea.
PRP-1, 5µ	584580	340.00	540580	315.00	584780	511.00	540780	484.00
PRP-1, 10µ	584581	307.00	540581	282.00	584781	450.00	540781	423.00
PRP-X100, 10µ	584582	341.00	540582	316.00	584782	539.00	540782	512.00
PRP-X200, 10µ	584584	341.00	540584	316.00	584784	539.00	540784	512.00
4.6 mm ID	P/N: New Length x ID 125 x 4.6 mm	New-Price €ea.	P/N: Refill Length x ID 125x4.6 mm	Refill-Price €ea.	P/N: New Length x ID 250x4.6 mm	New-Price €ea.	P/N: Refill Length x ID 250x4.6 mm	Refill-Price €ea.
PRP-1, 5µ	584580	474.00	546580	448.00	586780	698.00	546780	670.00
PRP-1, 10µ	584581	388.00	546581	362.00	586781	570.00	546781	542.00
PRP-X100, 10µ	584582	422.00	546582	396.00	586782	683.00	546782	655.00
PRP-X200, 10µ	584584	422.00	546584	396.00	586784	683.00	546784	655.00

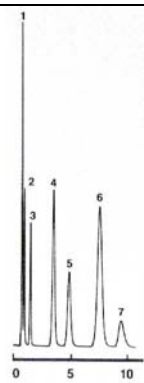
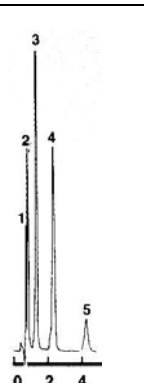
PRP-precolumn cartridges,

please complete the part number with the last 3 ciphers of the P/N in the price list of the equivalent analytical column (P/N of the 125 mm column) or order with the exact name of the packing material.

For example: PRP-1, 5µ please complete with -580. Prices and declaration see page 120 and 121.

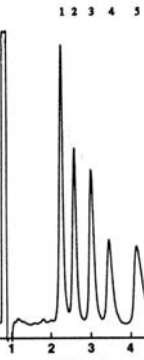
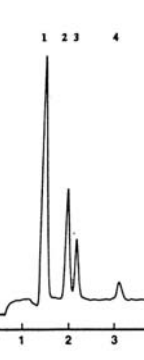
PRP-1 Polystyrene-divinylbenzene based Reversed Phase Material

pH-stable from pH 1 to pH 13, pressure stable up to 300 bar

<p>Analgesics on PRP-1-10µ</p> <p>Column Dimension: 250 x 4 mm Mobile Phase: Acetonitrile/Water (9:1) Flow: 2.0ml/min Room Temperature Paper: 2 mm/min Detector: UV 254 nm</p> <p>1. Acetaminophen 2. Caffeine 3. Saligenine 4. Salicylamide 5. Aspirin 6. Phenacetine 7. Salicylic Acid</p>		<p>Herbicides on PRP-1-10µ</p> <p>Column Dimension: 150 x 4 mm Mobile Phase: 0.1 M Na₃PO₄ (pH 12) Acetonitrile (2.5:1) Flow: 2.0ml/min Room Temperature Paper: 2 mm/min Detector: UV 254 nm</p> <p>1. p-Chorophenole 2. 2,4-Dichlorophenole 3. 2,4,5-&2,4,6-Trichlorophenole 4. 2,3,5,6-Tetrachlorophenole 5. Pentachlorophenole</p>	
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PRP-X200 Polystyrene-divinylbenzene based Cation Exchanger

pH-stable from pH 1 to pH 13, pressure stable up to 350 bar

<p>Inorganic Cations on PRP-X200</p> <p>Column Dimension: 150 x 4 mm Mobile Phase: 4 mmol Nitric Acid in 30% Methanol Flow: 2 ml/min Temperature: 40 °C Paper: 10 mm/min Detector: Conductivity</p> <p>1. Lithium 2. Sodium 3. Ammonium 4. Potassium 5. Cesium</p>		<p>Inorganic Cations on PRP-X200</p> <p>Column Dimension: 250 x 4 mm Mobile Phase: 1.5 mmol Ethylenediammonium nitrate Flow: 1.5 ml/min Temperature: 40°C Paper: 10 mm/min Detector: Conductivity</p> <p>1. Magnesium 2. Calcium 3. Strontium 4. Barium</p>	
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Original Polymer HPLC Columns from Hamilton



Reversed Phase Columns:

PRP-1: similar to C8-, C18 Columns – pH-stable from pH 0 to pH 13, available in 3 μ , 5 μ , 7 μ , 10 μ

Particle Size	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.
5 μ	100x2,1	56579790	590.70	150x1,0	56579753	647.60	150x2,1	56579366	647.60
5 μ	100x4,1	56579479	647.60	150x4,1	56579444	698.90	250x4,1	56579820	755.80
5 μ	100x4,6*	56579558	802.60	150x4,6*	56579423	724.60	250x4,6*	56579571	781.50
7 μ	150x4,1	56579529	647.60	250x4,1	56579422	698.90	250x4,6*	56579380	724.60
10 μ	250x4,1	56579427	647.60	150x4,6*	56579351	621.00	250x4,6*	56579381	673.20

*PEEK-Hardware

PRP-3: 300 Å material for the separation of proteins – pH stable from pH 0 to pH 13, available in 3 μ , 10 μ

Particle Size	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.
10 μ	150x2,1	56579392	720.20	150x4,1	56579466	797.10
10 μ	250x4,1	56579794	853.90	250x4,6*	56579574	930.10

PRP-C18: a highly cross-linked polystyrene-divinylbenzene (PS-DVB) similar to the silica-C18 phase for the separation of small molecules (<2000 MW), pharmaceuticals, steroids, organic halides, vitamins, amino acids, and herbicides, pH-stabil von 0-13

Particle Size	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.
5 μ	50x2,1	56579672	406.80	50x2,1*	56579679	435.90	150x2,1	56579673	550.80
5 μ	150x2,1*	56579680	547.20	250x2,1	56579674	594.50	250x2,1*	56579681	608.60
5 μ	50x4,6	56579675	454.40	50x4,6*	56579682	521.90	150x4,6	56579676	539.70
5 μ	150x4,6*	56579683	618.80	250x4,6	56579677	689.00	250x4,6*	56579684	701.10

*PEEK-Hardware

PRP-h5 are High Performance Polymer Phases for Reversed Phase Chromatography.

This high cross-linked poly(styrene-co-divinylbenzene) polymer can be used with **pH ranging from 1 to 13**. Common HPLC separation temperatures range between 20 and 85 °C and in some cases may go above 100°C

These column line offers a robust alternative to silica based and traditional polymer HPLC columns.

PRP-h5: 300 Å Phase (für Oligonukleotide und Proteine)

Particle Size	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.	Length x ID (mm)	P/N	€ea.
5 μ	100x2,1	56579270	735.60	150x2,1	56579271	807.20	50x4,6	56579261	667.70
5 μ	100x4,6	56579262	735.60	150x4,6	56579272	807.20	250x4,6	56579273	1055.70

Anion Exchange Columns, stable from pH 1-13:

PRP-X100: for separation of inorganic and organic anions from 10 to 500 ppm

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
5 μ	50x4,1	56579810	755.80	100x4,1	56579538	755.80	150x4,1	56579812	933.70
10 μ				150x2,1	56579421	647.60	250x2,1	56579346	698.90
10 μ	100x4,1	56579439	647.60				150x4,1	56579434	698.90
10 μ	250x4,1	56579433	755.80	150x4,6*	56579354	724.60	250x4,6*	56579455	781.50

PRP-X110: for separation of inorganic and organic anions from 20 ppb to 20 ppm

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	100x1.0	56579776	962.20						
7 μ	150x4.1	56579732	797.10	250x4.1	56579734	853.90	150x4.6*	56579738	828.30

Original Polymer HPLC Columns from Hamilton



PRP-X110S: for separation of anions with chemically suppressed ion chromatography

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	100x2.1	56579743	683.30	100x4,1	56579731	740.20			
7 μ	150x4.1	56579733	797.10	250x4,1	56579735	853.90	250x4,6*	56579741	885.10

RCX-10: for separation of carbohydrates (sugars)

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	250x4.1	56579440	1055.70	250x4,6*	56579388	1086.90

RCX-30: for separation of complex carbohydrates (sugars)

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	250x4.1	56579803	1055.70	150x4,6*	56579370	1024.60

Cation Exchange Columns, stable from pH 1-13:

PRP-X200: for separation of inorganic and organic cations from 20 ppb to 200 ppm

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
10 μ	150x2.1	56579394	621.00	150x4,1	56579441	673.20	250x4,1	56579442	724.60
10 μ				150x4,6*	56579384	698.90	250x4,6*	56579357	750.30

PRP-X400: for separation of glyphosates and it's metabolite aminomethylphosphonic acid

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	150x4.1	56579717	910.80	250x4,1	56579473	967.70	250x4,6*	56579387	998.90

HC-75: for separation of carbohydrates

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
9 μ Ca	250x4.1	56579431	1024.80						
9 μ H	250x4.1	56579476	1024.60	100x7,8	56579547	1024.60	305x7,8	56579544	1366.70

Ion Exclusion

PRP-X300: for separation of alcohols and organic acids

Particle Size	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.	Length x ID	P/N	€ea.
7 μ	150x4.1	56579464	797.10	250x4,1	56579465	853.90	150x4,6*	56579475	828.30

*PEEK-Hardware

Please contact us for detailed information and sending the brochure „HPLC Columns & Accessories“ or download by www.cs-chromatography.com.

Pre columns

For all original Hamilton HPLC columns you may order precolumn cartridges and a special holder.

SNAP[®] - Preparative Glass Columns



High-Performance Glass Columns

Essential Life Solutions glass columns were developed based on many years of experience to meet the increased requirements in preparative chromatography. **SNAP[®]-High-Performance** columns are the most powerful and user-friendly products of its kind on the market.



The new and unique closing mechanism of **SNAP[®]** columns combined with a careful choice of materials results in a product line that takes into account the high demands of modern preparative chromatography in every respect



- 1 Higher pressure ratings incorporating glass construction
- 2 Linear motion of pistons
- 3 Calibrated glass tubing
- 4 True frits
- 5 Robust inlet and outlet connections
- 6 Fine thread adjustment
- 7 Double piston adjustment
- 8 Quick release ends
- 9 Graduated glass
- 10 Configurable



Program outline and options for configuration

ID	Length	Piston	O-Ring	Frits
10 mm	125 mm	Acetal (POM)	EPDM	PE 10 µm
15 mm	250 mm	PEEK	Viton	SS 10 µm
25 mm	250 mm	PEEK	Viton	SS 10 µm
35 mm	500 mm	PEEK	Kalrez	SS 10 µm

Samplen of configuration

for use of aqueous buffers		for use of organic eluents	
Piston:	Acetal (e.g. 1 x short, 1 x long)	Piston:	PEEK (e.g. 1 x short, 1 x long)
O-Rings:	EPDM	O-Rings:	Viton or Kalrez
Frits:	Polyethylene (PE) 10 µm	Frits:	Stainless Steel (SS) 10 µm

SNAP[®] - Preparative Glass Columns



Sample Prices

P/N	ID (mm)	Length (mm)	Piston	O-Ring		Frits	Column	Packing	Cartridge*
							€ea.	adapter	€ea.
Appendix ¹⁾ →							-S	-P	-K
423S10125PASS OEFP10	10	125	Acetal	short/short	EPDM	PE 10 µm	699.00	921.00	633.00
423S10250PASIL OEFP10	10	250	Acetal	short/long	EPDM	PE 10 µm	711.00	933.00	645.00
423S10500PALL OEFP10	10	500	Acetal	long/long	EPDM	PE 10 µm	738.00	957.00	671.00
423S15125PASS OEFP10	15	125	Acetal	short/short	EPDM	PE 10 µm	974.00	952.00	726.00
423S15250PASIL OEFP10	15	250	Acetal	short/long	EPDM	PE 10 µm	982.00	960.00	703.00
423S15500PALL OEFP10	15	500	Acetal	long/long	EPDM	PE 10 µm	1.006.00	984.00	759.00
423S25125PASS OEFP10	25	125	Acetal	short/short	EPDM	PE 10 µm	1.068.00	974.00	770.00
423S25250PASIL OEFP10	25	250	Acetal	short/long	EPDM	PE 10 µm	1.082.00	984.00	781.00
423S25500PALL OEFP10	25	500	Acetal	long/long	EPDM	PE 10 µm	1.152.00	1.041.00	837.00
423S25125PPSS OKFS10	25	125	PEEK	short/short	Kalrez	SS 10 µm	1.107.00	1.025.00	885.00
423S25250PPSL OKFS10	25	250	PEEK	short/long	Kalrez	SS 10 µm	1.243.00	1.036.00	910.00
423S25500PPLL OKFS10	25	500	PEEK	long/long	Kalrez	SS 10 µm	1.332.00	1.103.00	980.00
423S25125PPSS OVFS10	10	125	PEEK	short/short	Viton	SS 10 µm	1.146.00	974.00	832.00
423S25250PPSL OVFS10	15	250	PEEK	short/long	Viton	SS 10 µm	1.176.00	984.00	857.00
423S25500PPLL OVFS10	25	500	PEEK	long/long	Viton	SS 10 µm	1.266.00	1.041.00	928.00



* The Cartridge version is suitable when multiple columns are needed with the same ID whereof only one is in use. The cartridge is a full column, but without the clamps.

The SNAP[®] - Glass columns can be arranged individually of your application within the configuration options.

For detailed prices you find a request form on our homepage (www.cs-chromatographie.de).

Special designs (e.g. special lengths or cooling or heating jacket) are available on request.

For application in preparative chromatography we offer a **wide range of silica phases** with different surface modifications and in different particle sizes. We look forward to your inquiry.

Accessories like tubings, fittings, filters, etc. can be found in our extensive program of VICI and IDEX (Upchurch).



Semipreparative and Preparative Columns

Orientation prices ———> valid prices on request only

8 mm ID	P/N:New Length x ID 40x8 mm	New-Price €ea.	P/N: Refill Length x ID 40x8 mm	Refill- Price €ea.	P/N:New Length x ID 250x8 mm	New-Price €ea.	P/N: Refill Length x ID 250x8 mm	Refill- Price €ea.
LiChrosorb RP 18-5	548145	208.00	549145	143.00	528145	593.00	529145	493.00
Multospher Si 100-5	548370	168.00	549370	103.00	528370	399.00	529370	299.00
Multospher 100 RP 18-5µ	548375	195.00	549375	130.00	528375	534.00	529375	434.00
Multospher 120 RP 18-HP-5µ	5481171	190.00	5491171	125.00	5281171	509.00	5291171	409.00
Multohigh Si 100-5	5481173	174.00	5491173	109.00	5281173	429.00	5291173	329.00
Multohigh 100 RP 18-5µ	5481172	190.00	5491172	125.00	5281172	507.00	5291172	407.00
Multohigh-BIO 300 C4-10µ	5481203	165.00	5491203	100.00	5281203	399.00	5291203	299.00
Multokrom 100-5 C18	648909	161.00	649909	96.00	628909	364.00	629909	264.00
Multokrom 100-10 C18	648910	151.00	649910	86.00	628910	310.00	629910	210.00
Multospher-APS-HP-5µ	5481129	212.00	5491129	147.00	5281129	618.00	5291129	518.00

10 mm ID	P/N:New Length x ID 50x10 mm	New-Price €ea.	P/N: Refill Length x ID 50x10 mm	Refill- Price €ea.	P/N:New Length x ID 250x10 mm	New-Price €ea.	P/N: Refill Length x ID 250x10 mm	Refill- Price €ea.
LiChrosorb RP 18-5	51014505	305.00	51114505	203.00	51014525	881.00	51114525	754.00
Multospher Si 100-5	51037005	244.00	51137005	142.00	51037025	576.00	51137025	449.00
Multospher 100 RP 18-5µ	51037505	287.00	51137505	185.00	51037525	790.00	51137525	663.00
Multospher 120 RP 18-HP-5µ	510117105	279.00	511117105	177.00	510117125	752.00	511117125	625.00
Multohigh Si 100-5	510117305	254.00	511117305	152.00	510117325	624.00	511117325	497.00
Multohigh 100 RP 18-5µ	510117205	278.00	511117205	176.00	510117225	748.00	511117225	621.00
Multohigh-BIO 300 C4-10µ	510120305	238.00	511120305	136.00	510120325	577.00	511120325	450.00
Multokrom 100-5 C18	61090905	233.00	61190905	131.00	61090925	521.00	61190925	394.00
Multokrom 100-10 C18	61091005	216.00	61191005	114.00	61091025	437.00	61191025	310.00
Multospher-APS-HP-5µ	510112905	314.00	511112905	212.00	510112925	924.00	511112925	824.00

20 mm ID	P/N:New Length x ID 50x20 mm	New-Price €ea.	P/N: Refill Length x ID 50x20 mm	Refill- Price €ea.	P/N:New Length x ID 250x20 mm	New-Price €ea.	P/N: Refill Length x ID 250x20 mm	Refill- Price €ea.
LiChrosorb RP 18-5	522145	721.00	523145	601.00	520145	2926.00	521145	2726.00
Multospher Si 100-5	522370	471.00	523370	351.00	520370	1670.00	521370	1470.00
Multospher 100 RP 18-5µ	522375	647.00	523375	526.00	520375	2543.00	521375	2343.00
Multospher 120 RP 18-HP-5µ	5221171	615.00	5231171	495.00	5201171	2385.00	5211171	2185.00
Multohigh Si 100-5	5221173	510.00	5231173	390.00	5201173	1863.00	5211173	1663.00
Multohigh 100 RP 18-5µ	5221172	612.00	5231172	492.00	5201172	2372.00	5211172	2172.00
Multohigh-BIO 300 C4-10µ	5221203	448.00	5231203	328.00	5201203	1670.00	5211203	1470.00
Multokrom 100-5 C18	622909	426.00	623909	306.00	620909	1443.00	621909	1243.00
Multokrom 100-10 C18	622910	357.00	623910	237.00	620910	1099.00	621910	899.00
Multospher-APS-HP-5µ	5221129	756.00	5231129	636.00	5201129	3090.00	5211129	2890.00

The above listed prices are only price examples for semipreparative and preparative HPLC columns. The prices are depending on the packing materials and therefore subject to variability. Please ask the valid price.

Well-priced CS universal guard columns in 8 mm, 10 mm and 20 mm ID

8, 10, 20 mm ID	P/N:New Length x ID 40x8 mm	New-Price €ea.	P/N: Refill Length x ID 40x8 mm	Refill- Price €ea.	P/N:New Length x ID 50x10 mm	New-Price €ea.	P/N: Refill Length x ID 50x10 mm	Refill- Price €ea.	P/N:New Length x ID 50x20 mm	New-Price €ea.	P/N: Refill Length x ID 50x20 mm	Refill- Price €ea.
Universal CS-Si 5µ	5481150	148.00	5491150	83.00	510115005	211.00	511115005	109.00	5221150	337.00	5231150	217.00
Universal CS-Si 10µ	5481151	140.00	5491151	75.00	510115105	199.00	511115105	97.00	5221151	289.00	5231151	169.00
Universal CS-C18 5µ	5481154	152.00	5491154	87.00	510115405	218.00	511115405	116.00	5221154	364.00	5231154	244.00
Universal CS-C18 10µ	5481155	148.00	5491155	83.00	510115505	213.00	511115505	111.00	5221155	344.00	5231155	224.00



You do not find your column?
 The above listed HPLC columns are only an abstract of our product range of preparative and semipreparative columns from CS-Program.
 For a valid price or other packing materials please contact us!

More HPLC Columns from the CS program:

HPLC



Shodex
OHpak
Asahipak
etc.

Merck
Purospher®
ZIC®-HILIC
Chromolith®
etc.

Agilent
ZORBAX®
Poroshell®
Pursuit®
Polaris®
etc.

Waters
Spherisorb®
μBondapak®
Nova-Pak®
etc.

Thermo
Hypersil®
Hypersil GOLD®
Hypercarb®
etc.

ACE®
EXCEL®

Restek
Ultra II®
Pinnacle®
Allure®
etc.

YMC
Pro
YMC-Pack
TriArt
etc.

**advanced
material
technology**
HALO®

Beside the HPLC columns specified explicitly in the catalog CS offers an extensive program of columns of different manufacturers. If you do not your favored column please contact us-

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