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Preventive Maintenance (PM) Kits for Agilent HPLC Systems

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Autosampler PM Kit Includes: rotor seal, needle seat, needle assembly, seat cap	1050	01078-68721	kit	25259
Autosampler PM Kit Includes: rotor seal, piston seals (2), needle assembly, needle seat, finger caps (3)	1100, 1200	G1313-68709	kit	25271
Pump PM Kit Includes: PTFE frits (2), outlet cap, gold disk seal, active inlet cartridge, piston seals (4), glass solvent filters (2)	1050, 1100, 1200	G1311-68710	kit	25270
Pump Maintenance Kit Includes: sapphire plunger (2), piston seals (2), outlet ball check valve, active inlet cartridge, PTFE frits (5)	1100, 1200	5065-4499	kit	25915


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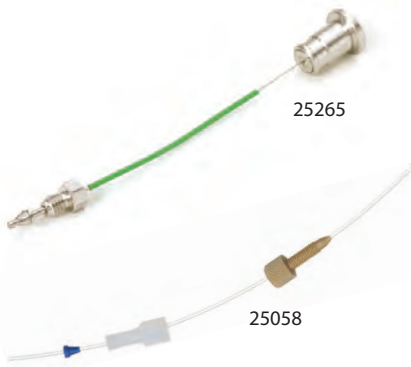

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Injector & Autosampler Supplies for Agilent HPLC Systems

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Needle Seat	1050, 1090	79846-67101	ea.	25258
Needle Seat Assembly	1100, 1200, 1220	G1329-87017	ea.	25265
Needle Assembly	1100, 1200	G1313-87201	ea.	25278
Needle Assembly, 900 µL	1050, 1100, 1200	G1313-87202	ea.	25916
Rotor Seal, 2-Groove (not for use with 7125 injection valve)	1050	0101-0626	ea.	25272
Rotor Seal, 2-Groove	1100, 1200	0100-1853	ea.	25275
Rotor Seal (Rheodyne-Style), 3-Groove	1090	1535-4048	ea.	25349
Stator Face Assembly	1100, 1200	0100-1851	ea.	26424
Connecting Tube	1050, 1100	G1311-67304	ea.	25058
Injector Lubricant, PTFE, 10 g	1050, 1100	79841-65501	ea.	26520
Solvent Inlet Filter, SS	1050, 1090, 1100, 1200	01018-60025	ea.	26423
Isolation Seal for Injection Valve	1100, 1200	0100-1852	ea.	25917



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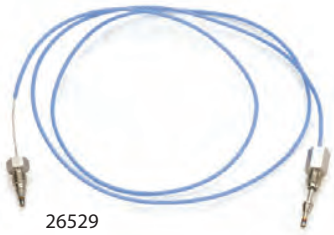
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Capillary Stainless Steel Tubing Assemblies for Agilent HPLC Systems

- Precut, micropolished tubing and preseated fittings for quick, easy maintenance of your Agilent HPLC systems.
- Meet or exceed manufacturer's performance.

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Capillary SS Tubing With Fittings, 130 mm x 0.17 mm ID	1090	01090-87305	ea.	26525
Capillary SS Tubing With Fittings, 800 mm x 0.17 mm ID	1050	01078-87305	ea.	26526
Capillary SS Tubing With Fittings, 180 mm x 0.17 mm ID	1100	G1313-87305	ea.	26527
Capillary SS Tubing With Fittings, 700 mm x 0.25 mm ID	1050	01018-67305	ea.	26528
Capillary SS Tubing With Fittings, 700 mm x 0.25 mm ID	1050	01078-87306	ea.	26529
Seat Capillary, SS Tubing, 0.17 mm ID	1050	01078-87303	ea.	26530
Capillary SS Tubing, 105 mm x 0.17 mm ID	—	5021-1816	ea.	26531
Mixing Capillary Assembly	1100	G1312-67302	ea.	26532
Capillary SS Tubing, Valve to Metering Head	1100	G1313-87301	ea.	26533
Capillary SS Tubing, 150 mm x 0.17 mm ID	—	5021-1817	ea.	26534
Capillary SS Tubing, 280 mm x 0.17 mm ID	—	5021-1818	ea.	26535
Capillary SS Tubing, 400 mm x 0.17 mm ID	—	5021-1819	ea.	26536
1/16" Fitting, Front and Back Ferrules, Stainless Steel	—	5062-2418	10-pk.	26537


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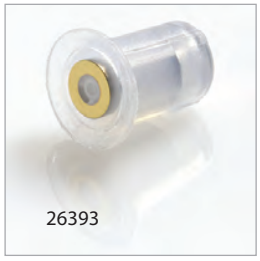
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Pump Supplies for Agilent HPLC Systems

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Piston Seals, PTFE w/Graphite, Black*	1050, 1100, 1200	5063-6589	2-pk.	22482
Piston Seals, PTFE w/Graphite, Black*	1050, 1100, 1200	5063-6589	10-pk.	22483
Piston Seals, Black, ASI	1050, 1100	5062-8516	10-pk.	25176
Piston Seals, Black	1090	5062-2494	4-pk.	25347
Pump Block Piston Seal	1050, 1100, 1200	0905-1420	2-pk.	25918
Seal Wash Kit, Binary Pump (4 seals, 4 gaskets)	1050, 1100, 1200	—	kit	25268
Seal Wash Kit (2 seals, 2 gaskets)	1050, 1100, 1200	—	kit	25269
Wash Seal	1050, 1100, 1200	0905-1175	ea.	25277
Active Inlet Cartridge	1050, 1100, 1200	5062-8562	ea.	26393
Seal, Gold Disk (outlet)	1050, 1100, 1200	5067-4728	ea.	25889
Outlet Cap	1050, 1100, 1200	5062-2485	4-pk.	25139
Outlet Cap & Gold Seal Assembly	1050, 1100, 1200	—	2-pk.	25890
Outlet Ball Valve, Binary Pump	1100, 1200	G1312-60012	ea.	25267
Outlet Ball Valve	1050, 1100, 1200	G1311-60012	ea.	25276
Sieves for Outlet Valve	1100, 1200	5063-6505	10-pk.	25266
Check Valve Cartridge Assembly	1090	79835-67101	ea.	25344
Frits, PTFE	1050, 1100, 1200	01018-22707	5-pk.	25466
Plunger Assembly	1050, 1100, 1200	5063-6586	ea.	25273
Sapphire Piston	1090	3980-0672	ea.	25345

*Graphite-filled PTFE; best for organic solvents.

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Lamps for Agilent HPLC Systems

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Detector Lamp, 1090 DA, 1050 VW/DA/MWD	1090, 1050	79883-60002	ea.	25260
Lamp, DAD G1315A, G1365A*	1100, 1200	2140-0590	ea.	25261
Lamp, VWD G1314A	1100, 1200	G1314-60100	ea.	25262
Lamp, DAD Long-Life Deuterium (2,000 hours)	1100, 1200 DAD	5181-1530	ea.	25399
8453 Deuterium Lamp	—	2140-0605	ea.	25263
Deuterium Lamp (2,000 hours)*	1100 DAD/MWD/1200	2140-0813	ea.	25888

*Compatible with 1260.

Other Supplies for Agilent HPLC Systems

Description	Model #	Similar to Agilent Part #	qty.	cat.#
Bottle Head Assembly	—	G1311-60003	ea.	25059

Injector & Autosampler Supplies for PerkinElmer HPLC Systems

Description	Model #	Similar to PE Part #	qty.	cat.#
Needle	PE Series 200 Pumps	N2930023	ea.	25432


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Pump Supplies for PerkinElmer HPLC Systems

Description	Model #	Similar to PE Part #	qty.	cat.#
Low-Pressure Seal, Gold*	Int. 4000, 1, 10, 2, 200 Series, 250, 3, 3B, 4, 400, 410, 620	09907339	ea.	25435
Standard High-Pressure Seal, Gold*	Int. 4000, 1, 10, 2, 200 Series, 250, 3, 3B, 4, 400, 410, 620	09907324	ea.	25434
Standard Pump Seal Kit	200 Series	N2910383	kit	26425
High-Pressure Seal Kit Includes: pump seals (4), backup rings (4), O-rings (4)	Int. 4000, 1, 10, 2, 200 Series, 250, 3, 3B, 4, 400, 410, 620	0254-0275	kit	25433
Inlet Check Valve	Int. 4000, 1, 10, 2, 200 Series, 250, 3, 3B, 4, 400, 410, 620, Series 200 Micropump	02540177	ea.	25438
Outlet Check Valve	PE 200, 4, 250, 400, 410, 620	02540197	ea.	25437

*Ultra-high molecular weight polyethylene (UHMWPE); increased resistance to abrasion; best for buffers.


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Deuterium Lamps for PerkinElmer HPLC Systems

Description	Model #	Similar to PE Part #	qty.	cat.#
Deuterium Lamp	Lambda–2, 5, 7, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 25, 40, 800, 900	B016-0917	ea.	25436
Deuterium Lamp	200 Series, 785A	N2920149	ea.	25431


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Injector & Autosampler Supplies for Shimadzu HPLC Systems

Description	Model #	Similar to Shimadzu Part #	qty.	cat.#
Needle Seal, Vespel	LC-2010, SIL-10ADvp, 10AXL	228-33355-04	ea.	25468
Needle Seal, PEEK	SIL-10ADvp, 10AXL, HT	228-33355-01	ea.	25919
Needle Seal, PEEK	SIL-2010A/C HT, 20A/AC	228-42325-01	ea.	25920
Rotor Seal	SIL-10ADvp	228-21217-97	ea.	24986
Rotor Seal Assembly	SIL-10A, 10AXL, 10Ai	228-21217-91	ea.	25469
Stator Assembly	SIL-10A, 10AXL, 10Ai	228-21220-91	ea.	25470
Syringe, 500 µL	SIL-10A, 10AXL, 10Ai	228-25237-04	ea.	25471

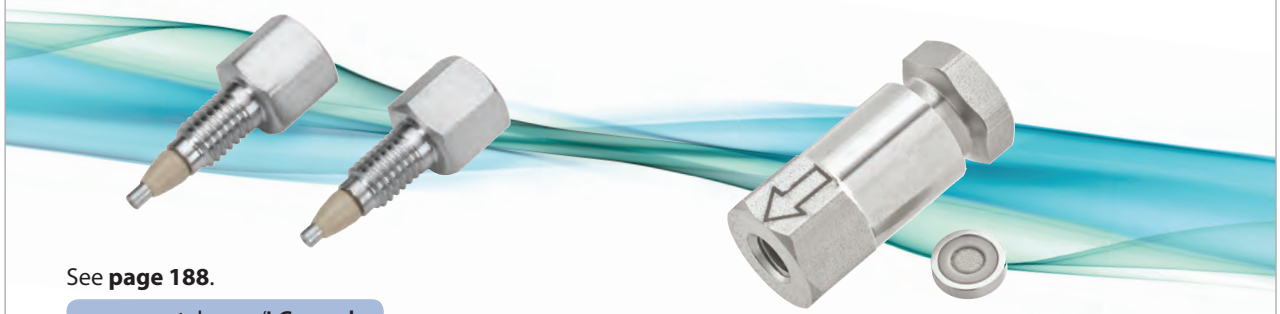

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Deuterium Lamps for Shimadzu HPLC Systems

Description	Model #	Similar to Shimadzu Part #	qty.	cat.#
Deuterium Lamp	SPD-10, 10A, 10AVvp, SPD-20A, SPD-20AV	228-34016-02	ea.	25284

Protect your column and your UHPLC performance with UltraShield and UltraLine UHPLC filters

A cost-effective way to extend the lifetime of any UHPLC column without sacrificing your UHPLC performance on any LC system.



See **page 188**.

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Pump Supplies for Shimadzu HPLC Systems

Description	Model #	Similar to Shimadzu Part #	qty.	cat.#
Plunger Seal, Polyethylene, Gold**	LC-10Ai, 10AS, 10AT, 10ATvp, LC-7A	228-21975-00	ea.	25290
Plunger Seal, Black*	LC-10AD, 10ADvp, LC-20AD/AB, LC-600, LC-2010 A/C HT, LC-9A	228-35146-00	ea.	24980
Plunger Seal, Gold**	LC-10ADvp, LC-20AD/AB	228-32628-00	ea.	24981
Plunger Seal, Black*	LC-10ATvp, LC-20AT, LC-HT, SIL-10ADvp, SIL-2010 A/C HT, SIL-20A/AC, SIL-HT	228-35145-00	ea.	24985
Plunger Rinse Seal	LC-10Ai, LC-10AS, LC-10AT, LC-10ATvp	228-28499-00	ea.	25292
Inlet Check Valve	LC-6A, LC-10AS	228-12353-91	ea.	25287
Inlet Check Valve	LC-600, LC-9A, LC-10AD	228-18522-91, 228-33492-91	ea.	25295
Inlet Check Valve	LC-10ADvp	228-39093-92	ea.	24984
Inlet Check Valve	LC-10AT, LC-10ATvp	228-32166-91	ea.	26521
Inlet Check Valve	LC-20AD/AB XR	228-48249-91, 228-45704-91	ea.	26426
Outlet Check Valve	LC-6, LC-10AS, LC-8A	228-09054-93	ea.	25288
Outlet Check Valve Rebuild Kit Includes: ruby ball (2), seat (2), thin washer (2), thick washer (2), retainer washer (2)	LC-6A, LC-10AS	228-11200-91	kit	25289
Outlet Check Valve	LC-600, LC-9A, LC-10AD, LC-10AT	228-18522-92, 228-32531-92	ea.	25282
Outlet Check Valve	LC-10ADvp, LC-10ATvp	228-34976-91	ea.	24983
Outlet Check Valve	LC-20AD/AB XR	228-45705-91, 228-45563-91	ea.	26427
Sapphire Plunger	LC-10AS, LC-7A	228-17019-93	ea.	25291
Sapphire Plunger	LC-600, LC-9A, LC-10AD	228-18523-91	ea.	25294
Sapphire Plunger	LC-20AT	228-35009-93	ea.	25921
Sapphire Plunger	LC-20AD/AB, LC-2010	228-35601-93	ea.	25922
Sapphire Plunger	LC-2010A/C HT, LC-HTSIL-10ADvp, SIL-20A/AC	228-35010-91	ea.	25923
Plunger Assembly, Ceramic	LC-10ADvp	228-35601-91	ea.	25472
Plunger Assembly, Ceramic	LC-10ATvp	228-35009-92	ea.	25473
Plunger Assembly, Sapphire	LC-10ADvp	228-35601-92	ea.	24982
Suction Filter, SS	LC-10ADvp, 10ATvp, 20AD/AB, 2010A/C HT	228-45707-91	ea.	25924

*Graphite-filled PTFE; best for organic solvents.
**Ultra-high molecular weight polyethylene (UHMWPE); increased resistance to abrasion; best for buffers.


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Injector & Autosampler Supplies for Thermo HPLC Systems

Description	Model #	Similar to Thermo Part #	qty.	cat.#
Rotor Seal Assembly, Rheodyne 7010	TSP AS100, 300, 1000, 3000, 3500, 8875, and 8880 Autosamplers	1535-4048, 7010-039, 2508-0360	ea.	25481
Syringe Assembly, 250 µL	1000, CM3000, CM3500, AS100	A3588-020	ea.	25482
Syringe, 500 µL	8800 Series	3301-0100	ea.	25483



Lamps for Thermo HPLC Systems

Description	Model #	Similar to Thermo Part #	qty.	cat.#
Lamp, UV	Spectrachrom 200, UV100, UV1000, UV150, UV200, UV2000, UV3000	9551-0023	ea.	25484



















Pump Supplies for Thermo HPLC Systems

Description	Model #	Similar to Thermo Part #	qty.	cat.#
Inlet Check Valve Assembly	8800, 8810, ISOCHROM, P1000, P2000, P4000	A3495-010	ea.	25474
Outlet Check Valve Assembly	8700, 8800, 881, ISOCHROM	A3490-010	ea.	25475
Transducer Check Valve Assembly	P1000, P2000, P4000	A3990-010	ea.	25479
Check Valve Cartridge	3000, 3200, 3500, 4000, 4100, Constametric I, II, and III	900946	ea.	25485
Piston	8800, 8810, ISOCHROM, P1000, P2000, P4000	A3102-010	ea.	25476
Sapphire Plunger	CM3000, CM3200, CM3500, CM4000	801306	ea.	25486
Back-Up Seal	8800, 8810, ISOCHROM, P1000, P2000, P4000	A2963-010	ea.	25477
Plunger Seal, Gold Superseal**	8800, 8810, ISOCHROM, P1000, P2000, P4000	A2962-010	ea.	25478
Plunger Seal Kit, Gold** Includes: SS plunger seal spacer, Rulon plunger seal spacer (2), O-ring, gold plunger seal	LDC Constametric Pumps	801892001	kit	25487
Plunger Seal, Black*	CM3000, CM3200, CM3500, CM4000	206129001	ea.	25488
Plunger Seal, Gold**	CM3000, CM3200, CM3500, CM4000	206156001	ea.	25489
Kel-F Washer	P1000, P2000, P4000	A4848-010	ea.	25480

*Graphite-filled PTFE; best for organic solvents.
**Ultra-high molecular weight polyethylene (UHMWPE); increased resistance to abrasion; best for buffers.






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Preventive Maintenance (PM) Kits for Waters HPLC Systems

Description	Model #	Similar to Waters Part #	qty.	cat.#
2690/2695 Pump & Autosampler PM Kit Includes: sapphire plungers (2), seal wash plunger seals (4), head plunger seals (4), wash tube seals (4), battery, sparge diffuser, filter insert, face seals (4), solvent reservoir 10 µm filters (4), 250 µL syringe, check valve cartridges (2), wash tube seal, seal wash tube, PTFE washer, filter retainer, lower wash seal frit, needle wash frit, TFE washer, needle assembly, gold injector seals (2), stainless steel ferrule, compression screw	Alliance 2690, 2695	WAT270944	kit	25143
717 Autosampler PM Kit Includes: seal pack assembly, tube assembly (0.020" ID), needle, needle compression screw, 0.062 stainless steel ferrule, pre-column filter assembly, filter insert, 250 µL WISP syringe	717 Autosampler	WAT052669	kit	25145
600 Pump PM Kit Includes: PerformancePLUS cartridges (4), sparge diffusers (4), Super Seals (2), solvent reservoir 10 µm filters (4), sapphire plungers (2), reference valve button, valve disk spacer, valve disk, TFE ball plug, TFE seat, ruby ball, inlet tube body assembly manifold insert, insert seal, belleville washers (2), flat washer	600 Pump	WAT052675	kit	25144
616 Pump PM Kit Includes: sapphire plungers (2), sparge diffusers (4), solvent reservoir 10 µm filters (4), plunger seals (2), plunger wash seals (2), O-rings (2), backup rings (2), check valve cartridges (4)	616 Pump	WAT052672	kit	25146
515 Pump PM Kit Includes: PerformancePLUS check valves (4), sparge diffuser, solvent reservoir 10 µm filter, sapphire plungers (2), plunger seals (2), pivot inserts (2), pivot guides (2), washer (2), plunger springs (2), retaining rings (2)	515 Pump	WAT052587	kit	26519
1525 Pump PM Kit Includes: sapphire plungers (4), check valve cartridges (8), plunger seals (4), solvent reservoir 10 µm filters (2), reference valve button, valve disk spacer, valve disk	1525 Pump	201000114	kit	26430



Simplify Routine LC Maintenance

Preventive Maintenance Kits

- Significant savings over instrument manufacturer prices.
- High-quality components in every kit.
- Wide range of options for HPLC systems and pumps.

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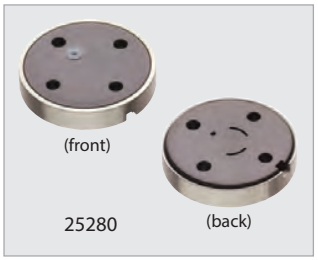

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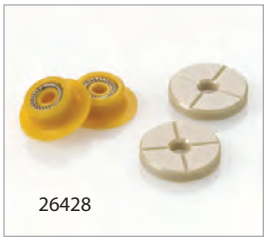

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Injector & Autosampler Supplies for Waters HPLC & ACQUITY UPLC® Systems

Description	Model #	Similar to Waters Part #	qty.	cat.#
Needle Assembly, 0.010 mm ID	ACQUITY	700002644	ea.	25942
Sample Loop, 10 µL	ACQUITY, nanoACQUITY	430001326	ea.	25943
Wash Station O-Ring	ACQUITY, nanoACQUITY	700002572	ea.	25944
Metering Syringe, 100 µL	ACQUITY, nanoACQUITY	700002570	ea.	25945
Tube Assembly, Inject Outlet	ACQUITY	430001084	ea.	25946
Tube Assembly, System Outlet	ACQUITY	430001486	ea.	25947
Seal Pack Rebuild Kit, Without Seal Wash Tube Assembly Includes: wash tube seal, seal wash tube, PTFE washer, filter retainer, lower wash seal frit, needle wash frit, TFE washer, needle, injector seal (2), compression screw, ferrule	2690, 2695	WAT271019	kit	25495
Seal Pack With Needle Includes: seal pack assembly, pre-column filter assembly, needle, 0.020" ID tube assembly, compression screw, ferrule	717, LC Module 1	WAT045559	ea.	25496
Vespel Rotor Seal	1090, 7000, 7010, 7040, 7067	7010-039	ea.	25279
Vespel Rotor Seal	7125, 7126, 7725, 7725i, 9725	7125-047	ea.	25280
Isolation Seal	7010	7010-015	ea.	25281

Instrument Replacement Parts for Waters HPLC & ACQUITY UPLC® Systems


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Pump Supplies for Waters HPLC & ACQUITY UPLC® Systems (Also see pages 332–333.)

Description	Model #	Similar to Waters Part #	qty.	cat.#
Head Plunger Seal Kit Includes: head plunger seals (2), back-up washers (2)	ACQUITY, nanoACQUITY	700002599	kit	26428
Wash Seal	ACQUITY, nanoACQUITY	700002598	2-pk.	26429
Pump O-Ring	ACQUITY, nanoACQUITY	WAT076152	ea.	25951
In-Line Filter Assembly, Stainless Steel Frit	ACQUITY, nanoACQUITY	289003547	ea.	25952
Filter Frit Cartridge, Stainless Steel	ACQUITY	700002913	ea.	25953
Solvent Bottle Filters	ACQUITY	700003616	7-pk.	25954
Tube Assembly, SSV to In-line Filter	nanoACQUITY	430001470	ea.	25948
Tube Assembly, Transducer to Check Valve, BSM	ACQUITY, nanoACQUITY	430001121	ea.	25949
Tube Assembly, Transducer to Check Valve, QSM	ACQUITY	430002357	ea.	25950
Tube Assembly, SSV to I2V	ACQUITY	430001443	ea.	25941
Super Seal for Analytical Heads	M6KA,1515, 1525, 510, 515, 590, 600, 610, LC Module 1	WAT022946	ea.	25374
Plunger Seal, Gold**	1515, 1525, 510, 515, 600, 610, LC Module 1	—	ea.	25375
Plunger Seal, Black*	1515, 1525, 510, 515, 600, 610, LC Module 1	WAT026613	ea.	25378
Plunger Seal, Gold for EF Heads**	510, 515, 590, 600, 610, LC Module 1	700002282	ea.	25380
Pump Seal Kit Includes: plunger seals (2), wash seals (2), O-rings (2), back-up rings (2)	616, 1525 Micro	WAT034515	kit	25497
Seal Wash Plunger Seals	2690, 2695, 2790, 2795	WAT270160, WAT271018	2-pk.	25386
Head Plunger Seals, Gold	2690, 2695, 2790, 2795	WAT270789, WAT270938	2-pk.	25387
Head Plunger Seals, Black	2690, 2695, 2790, 2795	WAT271066	2-pk.	25388
Seal Wash Face Seal	2690, 2695, 2790, 2795	WAT271017	ea.	25428
Wash Tube Seal Kit	2690, 2695, 2790, 2795	WAT270940	4-pk.	25429
Face Seals Replacement Kit	2690, 2695, 2790, 2795	WAT270163, WAT270939	4-pk.	26547

*Graphite-filled PTFE; best for organic solvents.
**Ultra-high molecular weight polyethylene (UHMWPE); increased resistance to abrasion; best for buffers.


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Pump Supplies for Waters HPLC & ACQUITY UPLC® Systems (cont.)

Description	Model #	Similar to Waters Part #	qty.	cat.#
Primary Check Valve	ACQUITY, nanoACQUITY	700002596	2-pk.	25955
Accumulator Check Valve (Double Ball & Seat)	ACQUITY, nanoACQUITY	700002968	2-pk.	25956
I2 Check Valve Cartridge	ACQUITY	700005165	ea.	25957
Inlet Check Valve Assembly	M6KA, 510, 515, 590, 600, 610, LC Module 1	WAT033679, WAT025214	ea.	25360
Inlet Check Valve Housing	M6KA, 510, 515, 590, 600, 610, LC Module 1	WAT025203	ea.	25361
Inlet Check Valve Rebuild Kit Includes: blue washer (2), retainer gasket (2), Kel-F insert (2), ruby ball (2), TFE seat (2), TFE washer (2)	M6KA, 510, 515, 590, 600, 610, LC Module 1	WAT060495	kit	25362
Outlet Check Valve Assembly (Actuator Style)	M6KA, 510, 590	WAT025028	ea.	25363
Outlet Check Valve Housing (Actuator Style)	M6KA, 510, 590	WAT025212	ea.	25364
Outlet Check Valve Rebuild Kit (Actuator Style) Includes: 2 µm cup filter (2), compression spring (2), actuator (2), TFE washer actuator seat (2), TFE washer (2)	M6KA, 510, 590	WAT026016	kit	25365
Outlet Check Valve Assembly (Ball & Seat Style)	1525EF, 510, 515, 590, 600, 610, LC Module 1	WAT025216	ea.	25366
Outlet Check Valve Housing (Ball & Seat Style)	1525EF, 510, 515, 590, 600, 610, LC Module 1	WAT025207	ea.	25367
Outlet Check Valve Rebuild Kit (Ball & Seat Style) Includes: 2 µm cup filter (2), ruby ball (2), ball seat (2), Kel-F insert (2), blue washer (2), washer (2)	1525EF, 510, 515, 600, 610, LC Module 1	WAT026014	kit	25368
Inlet Check Valve Assembly, 225 µL (Extended Flow)	1525EF, 510, 515, 600, 610, LC Module 1	WAT060307	ea.	25369
Check Valve Rebuild Kit (Extended Flow) Includes: $^{3}/_{16}$" EF ruby ball (2), EF ball seat (2), EF guide seal (2), EF ball guide (2), EF housing seal (2)	510, 590, 600, LC Module 1	WAT088223	kit	25371
PerformancePLUS Check Valve Housing	1515, 1525, 510, 515, 525, 600, 610	—	ea.	25372
PerformancePLUS Check Valve Cartridge	1515, 1525, 2690, 2695, 2795, 510, 515, 600, 610	700000254	2-pk.	25370
Check Valve Cartridges	2690, 2695, 2790, 2795	WAT270941	2-pk.	25373
Check Valve Cartridge, Stainless Steel	616	WAT024960	ea.	25498


25381


25382


25384


25958


25385


25412


25492


25417


25494


25420

Pump Supplies for Waters HPLC & ACQUITY UPLC® Systems (cont.)

Description	Model #	Similar to Waters Part #	qty.	cat.#
Sapphire Plungers	ACQUITY, nanoACQUITY	700002600	2-pk.	25958
Sapphire Plunger	M6KA, 510, 590, 600, 610, LC Module 1	WAT025656, WAT069511	ea.	25381
Sapphire Plunger (Extended Flow)	1525EF, 510, 515, 590, 600, 610, LC Module 1	WAT060304	ea.	25382
Sapphire Plunger Assembly Kit Includes: sapphire plunger, pivot insert, pivot guide, washer, spring, retaining ring	515, 1515, 1525	WAS207069	kit	25384
Sapphire Plunger	616, 625, 626, 1525 Micro	WAT031788	ea.	25420
Sapphire Plunger	2690, 2695, 2790, 2795, 2796	WAT270488, WAT271067, WAT270959	ea.	25385
Indicator Manifold Kit Includes: TFE ball plug, TFE seat, ruby ball, manifold insert, TFE insert seal, belleville washer (2), flat washer, inlet tube body assembly	M45, 501, 510, 515, 590, 600, 610	WAT060448	kit	25412
Reference Valve Rebuild Kit Includes: ref valve button, valve disk spacer, valve disk	600 Pump	WAT025746	kit	25492
Ferrule, Stainless Steel	—	WAT022330	ea.	25417
Compression Screw, Stainless Steel	—	WAT025313	ea.	25493
Battery	2690, 2695, 717, 486, 484	WAT080443	ea.	25494


25404


25410


25408


25409


25405

Detector Supplies for Waters HPLC & ACQUITY UPLC® Systems

Description	Model #	Similar to Waters Part #	qty.	cat.#
Xenon Lamp (without holder or mirror)	470	—	ea.	25404
Xenon Lamp	474	—	ea.	25405
Deuterium Lamp, Long Life (2,000 hours)*	486	WAT080678	ea.	25410
Deuterium Lamp	996, 2996	WAT052586	ea.	25408
Deuterium Lamp	2487, 2488	WAS081142	ea.	25409

*Standard lamps have nominal 1,000-hour life.

Thomson SINGLE StEP® Filter Vials

Sample filtration that's economical, eco-friendly, and fast!



- Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Pre-slit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Low dead volume units feature rugged polypropylene vial and insert with 450 µL loading capacity.
- Fit most standard 12x32 mm autosamplers, including UHPLC instruments.

See **page 410**.

www.restek.com/**singlestep**

EXP® Reusable Fittings for HPLC & UHPLC for 10-32 fittings and 1/16" tubing

- Hand-tight fitting style achieves effortless HPLC seals—no tools needed for a 8,700+ psi seal.
- Both hand-tight and hex-head styles wrench-tighten for reliable UHPLC use up to 20,000+ psi!
- Patented ferrule can be installed repeatedly without compromising high-pressure seal.
- Hybrid design combines the durability of titanium with the sealing ability of PEEK.
- Cutting-edge system provides ZDV (zero dead volume) connection to any 10-32 female port.
- Compatible with 1/16" PEEK and stainless steel tubing.

Restek is pleased to offer the reusable EXP® fitting system from Optimize Technologies for the ultimate in easy, reliable LC connections!

The patented hybrid EXP® ferrule combines the durability of titanium with the sealing ability of PEEK for a swage that can be reused over and over again. And, when you choose the hand-tight fitting style, the special EXP® nut offers an effortless seal up to 8,700+ psi (600+ bar)—no tools needed! For a reliable 20,000+ psi (1,400+ bar) UHPLC connection with either fitting style, simply wrench-tighten an extra 1/4 to 1/2 turn.

EXP® ferrules should only be used with genuine EXP® nuts. When used with an EXP® nut, the EXP® ferrule provides repeated ZDV (zero dead volume) connections to any 10-32 female threaded port, including Restek® LC columns, 6-port injection valves, and more. To accommodate varying port depths, simply hold the tubing fully bottomed in the port and tighten as instructed.

WARNING: Do not use EXP® ferrules with standard nuts. Failure to use EXP® fittings according to the included instructions may result in unsafe UHPLC connections and/or non-ZDV connections.

EXP® Hand-Tight Fittings

Description	qty.	cat.#
EXP Hand-Tight Fitting (Nut w/Ferrule)	ea.	25937
EXP Hand-Tight Fitting (Nut w/Ferrule)	10-pk.	25938
EXP Hand-Tight Nut (w/o Ferrule)	ea.	25939

EXP® Hex-Head Fittings

Description	qty.	cat.#
EXP Std. Hex-Head Fitting (Nut w/Ferrule)	ea.	25926
EXP Std. Hex-Head Fitting (Nut w/Ferrule)	10-pk.	25927
EXP Short Hex-Head Fitting (Nut w/Ferrule)	ea.	25928
EXP Short Hex-Head Fitting (Nut w/Ferrule)	10-pk.	25929
EXP Long Hex-Head Fitting (Nut w/Ferrule)	ea.	25930
EXP Long Hex-Head Fitting (Nut w/Ferrule)	10-pk.	25931
EXP Std. Hex-Head Nut (w/o Ferrule)	ea.	25932
EXP Short Hex-Head Nut (w/o Ferrule)	ea.	25933
EXP Long Hex-Head Nut (w/o Ferrule)	ea.	25934

EXP® Hand-Tight Coupler

Description	qty.	cat.#
EXP Hand-Tight Coupler (2 Nuts, 2 Ferrules, 1/16" x 0.005" ID Tubing)	ea.	25940

EXP® Titanium Hybrid Replacement Ferrules

Description	qty.	cat.#
EXP Titanium Hybrid Ferrule	ea.	25935
EXP Titanium Hybrid Ferrule	10-pk.	25936

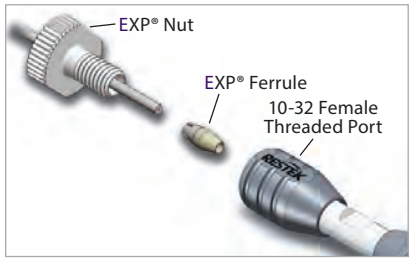
Hybrid Ferrule U.S. Patent No. 8201854, Optimize Technologies. Optimize Technologies EXP Holders are Patent Pending. Other U.S. and Foreign Patents Pending. The Opti- prefix is a registered trademark of Optimize Technologies, Inc.

A Raptor™ LC guard column cartridge in an EXP® holder is the Ultimate in Column Protection.

See **pages 155–159**.

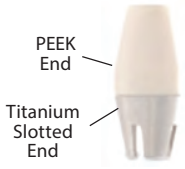


Raptor™ LC Columns
Selectivity Accelerated





25940
(shown assembled)



25935



Universal 10-32 PEEK Column Connectors and Plugs

Universal PEEK connectors allow easy installation of all 1/16" tubing, including stainless steel, up to 5,000 psi.

Description	qty.	cat.#
PEEK Column Connector (beige, round body)	10-pk.	25015
PEEK Column Plug (black)	10-pk.	25016
PEEK Finger-Tight Fittings (blue, flat-sided)	10-pk.	25324



Rheodyne® Style Nut and Ferrule

Replacement long nut for connecting stainless steel tubing to a Rheodyne® 6-port valve or other Rheodyne® part.

Description	qty.	cat.#
1/16" Rheodyne Style Nut	10-pk.	25095
1/16" Rheodyne Style Ferrule	10-pk.	25096



Zero Dead Volume Valco® Internal Union

Ends of tubing seat squarely at bottoms of fitting details. Made of 300-series stainless steel. For use with 1/16" OD tubing. Stainless steel ferrules included.

Description	Union Bore	Valco #	qty.	cat.#
Internal Union	0.15 mm	ZU1XC	ea.	20147
Internal Union	0.25 mm	ZU1C	ea.	20148
Internal Union	0.75 mm	ZU1	ea.	20149
Internal Union	1/16"	ZU1T	ea.	20150



PEEK Union Connector

Quickly and reliably connect two pieces of 1/16" tubing. 0.3 mm union bore. End fittings included.

Description	qty.	cat.#
PEEK Union Connector 1/16"	2-pk.	25323



LC-MS Gas Generators From Restek

Affordable
Generators are cost-effective and quickly pay for themselves.

Reliable
Dependably produce a continuous supply of high-purity carrier and fuel gas.

Safe
Eliminate hazardous cylinders and free up valuable lab space.

See **page 345**.

www.restek.com/gas



LC Stainless Steel Capillary Tubing

- 316-grade stainless steel.
- Precise precut lengths.
- Smooth surface finish.
- Ultra clean.

Whether you need to replace system tubing as part of your troubleshooting or want to reduce the dwell volume of your system as you move to narrower columns, Restek has the quality tubing in the lengths and IDs you need. Each ID is color coded, so it is easy to identify and replace correctly.

		0.005" ID (red) max. 21,600 psi	0.007" ID (gray) max. 20,900 psi	0.010" ID (blue) max. 19,700 psi	0.020" ID (yellow) max. 15,800 psi
Length	qty.	cat.#	cat.#	cat.#	cat.#
1/16" OD Tubing					
5 cm	3-pk.	25240	25244	25248	25252
10 cm	3-pk.	25241	25245	25249	25253
20 cm	3-pk.	25242	25246	25250	25254
30 cm	3-pk.	25243	25247	25251	25255


20188

Tubing Dressing Tool

Opens stainless steel tubing bore and removes burrs. For 1/16" OD tubing or 1/8" OD tubing.

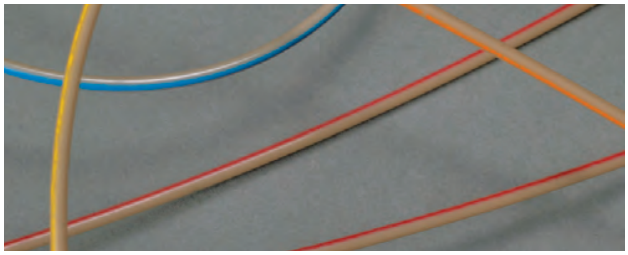
Description	Size	qty.	cat.#
Tubing Dressing Tool	1/16"	ea.	20188
Replacement Insert	for 1/16" Tubing Dressing Tool	ea.	20189
Tubing Dressing Tool	1/8"	ea.	20190
Replacement Insert	for 1/8" Tubing Dressing Tool	ea.	20191


25306

PTFE Tubing

- Ideal for mobile phase inlet lines.
- Chemically inert.
- Use to 500 psi (3,447 kPa) and 80 °C.

Description	OD	ID	Length	qty.	cat.#
PTFE Tubing	1/8"	0.063" (1.6 mm)	3 m	3 m	25306
PTFE Tubing	1/8"	0.094" (2.4 mm)	3 m	3 m	25307



Inert PEEK Tubing

- Replaces stainless steel, titanium, PTFE, or Tefzel® tubing.
- Less oxygen permeable and more temperature resistant (to 100 °C) than PTFE or Tefzel® tubing.
- Use with PEEK finger-tight or flangeless fittings.
- Use tubing ≤ 0.007" to 7,000 psi; tubing ≥ 0.010" ID to 5,000 psi.

Description	OD	ID	Length	Color Code	qty.	cat.#
PEEK Tubing	1/16"	0.0025"	1 m	pink dash stripe	3-pk.	25320
PEEK Tubing	1/16"	0.005"	3 m	red stripe	ea.	25065
PEEK Tubing	1/16"	0.007"	3 m	yellow stripe	ea.	25066
PEEK Tubing	1/16"	0.010"	3 m	blue stripe	ea.	25067
PEEK Tubing	1/16"	0.020"	3 m	orange stripe	ea.	25068

Clean-Cut Tubing Cutter

- Burr-free, perpendicular cuts that will not distort the tubing OD or close the ID.
- Use on PEEK, PTFE, Tefzel®, and other polymeric tubing.


25069

Description	qty.	cat.#
Clean-Cut Tubing Cutter	ea.	25069
Replacement Blade for Clean-Cut Cutter	ea.	25070

Tubing Clip

Securely holds 1/16" or 1/8" tubing in beaker, flask, or bottle up to 4 mm thick.


25310

Description	qty.	cat.#
Tubing Clip	5-pk.	25310


25308


25309

PEEK Tubing Elbows

Tubing elbows (90° and 180°) are ideal for routing 1/16" PEEK tubing through your system. Simply snap the tubing into the elbow. Prevent pinching of PEEK tubing, which can cause high pressure.

Description	qty.	cat.#
PEEK Tubing Elbow, 90°	5-pk.	25308
PEEK Tubing Elbow, 180°	5-pk.	25309


25336


25328

QuickSplit Post-Column Flow Splitters

Fluid resistor technology eliminates adjustments to capillary tubing for optimizing split ratio. Wide range of interchangeable resistors available.

Fixed Flow Splitters for HPLC & LC-MS

- Split ratio not affected by changes in viscosity or pressure.
- High operating pressure limit: 10,000 psi (68,948 kPa).
- Low dead volume—negligible effect on analyte bandwidth.
- Total flow: 0.1–5.0 mL/min.

Adjustable Flow Splitter

- Adjustable metering valve gives convenient control of split ratio.
- Split ratio not affected by changes in viscosity or pressure.
- High operating pressure limit: 5,000 psi (34,474 kPa).
- Low dead volume—negligible effect on analyte bandwidth.
- Total flow: 0.1–5.0 mL/min.

Description	Split Ratio	qty.	cat.#
Binary Fixed, Post Column	100:1	ea.	25326
	50:1	ea.	25327
	20:1	ea.	25328
	10:1	ea.	25329
	5:1	ea.	25330
Replacement Fixed Resistor Set, Post Column	100:1	ea.	25331
	50:1	ea.	25332
	20:1	ea.	25333
	10:1	ea.	25334
	5:1	ea.	25335
Adjustable, Post Column	5:1 to 100:1	ea.	25336
	1:1 to 20:1	ea.	25337
	50:1 to 1000:1	ea.	26416
Replacement Adjustable Resistor Set, Post Column*	5:1 to 100:1	ea.	25338
	1:1 to 20:1	ea.	25339

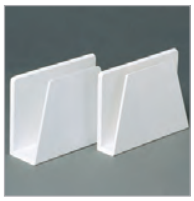
*QuickSplit post-column flow splitter serial number required for replacement resistor set to ensure compatibility. Every resistor is manufactured per serial number. The serial number is located on top of the splitter.


LCLocker LC Organizer


Deluxe BenchBooster Organizer


Mini pHPerch Storage Unit


LC 30-Column Storage Cabinet


Book Holders


Open Supply Bins, 13-bin unit


TopLoader Balance-Bank Storage Unit


Glove Box Dispensers

LC Organizers

Description	Dimensions	qty.	cat.#
LCLocker	24 x 12 x 6"	ea.	25149
BenchBooster	24 x 7 x 12"	ea.	25150
Mini pHPerch	13 x 12 x 6"	ea.	25147
TopLoader	12 x 12 x 7"	ea.	25148
30 Column Cabinet	17 x 15 x 3"	ea.	25159
Book Holder, 0.75" ID (Small)	4 1/2 x 6 x 1 1/4"	ea.	25151
Book Holder, 1.5" ID (Large)	4 1/2 x 6 x 1 3/4"	ea.	25152
Open Supply Bin	24 x 12 x 10" (4-Bin Unit)	ea.	25153
Open Supply Bin	12 x 16 x 10.5" (5-Bin Unit)	ea.	25154
Open Supply Bin	12 x 12 x 7.5" (13-Bin Unit)	ea.	25155
Glove Box Dispenser	5 1/8 x 11 x 4 1/4" (Single)	ea.	25156
Glove Box Dispenser	10 1/8 x 11 x 4 1/4" (Double)	ea.	25157
Glove Box Dispenser	15 1/8 x 11 x 4 1/4" (Triple)	ea.	25158

*Please note: Accessories and supplies in photographs are not included.





PEEK Fitting Extractor

Drill into the broken fitting, then screw the extractor into the fitting and remove it easily. Eliminates the need for heat or other techniques that could damage your column.



Description	qty.	cat.#
PEEK Fitting Extractor	ea.	25325



ValvTool Wrench

The ValvTool is a time-saving device that provides easy access to many hard-to-reach Rheodyne® or Valco® valves. For 1/4" nuts.

Description	qty.	cat.#
ValvTool Wrench	ea.	25321

Use the flat side of the piston seal insertion tool to seat a Waters face seal.



LC Piston Seal Insertion Tool

Simplify pump maintenance: use one end to remove your old seal, then simply slip your new seal on the other end and push it flush into position. The tool cannot mar the surrounding metal surface of the pump housing.



Remove a seal



Seat a seal



Description	qty.	cat.#
LC Piston Seal Insertion Tool	ea.	21356





Opti-Cap® GL-45 Bottle Tops

The most economical way to helium-sparge and deliver LC mobile phases. Opti-Cap® tops fit all standard GL-45 bottles and have two 1/8" holes and one 1/16" hole for tubing. All three openings are designed for threaded PEEK plugs.


25303

Description	qty.	cat.#
Opti-Cap (Cap and PEEK Plug)	ea.	25300
Opti-Cap Kit	kit	25301
Opti-Cap Kit with 1 L Bottle	kit	25302
Opti-Cap Kit with 2 L Bottle	kit	25303

Hub-Cap 4-Liter Bottle Tops

Hub-Cap bottle tops are a great way to neatly keep your mobile phase lines where they belong. Use them instead of plastic paraffin film, aluminum foil, or tape on your mobile phase reservoirs.


26541

Description	qty.	cat.#
Hub-Cap (assembly of the bottle cap and plug)	kit	26541
Hub-Cap Multi-Pack	3-pk.	26542

Hub-Cap Adaptors

Allow the use of the Opti-Cap® Top with 4-liter solvent bottles.

Description	qty.	cat.#
Hub-Cap Adaptor (allows use of the Opti-Cap w/4 L solvent bottles)	ea.	26538
Hub-Cap Adaptor Multi-Pack	3-pk.	26539
Hub-Cap Adaptor and Opti-Cap (for use w/GL-45 solvent bottles)	kit	26540

Related Items and Replacement Parts for Hub-Cap 4-Liter Bottle Tops

Description	qty.	cat.#
Mobile Phase Sparge Filter, 2 µm	ea.	25311
Mobile Phase Sparge Filter, 10 µm	ea.	25312
PTFE Tubing, 1/8" OD x 0.094" (2.4 mm) ID x 3 m	3 m	25307
PTFE Tubing, 1/8" OD x 0.063" (1.6 mm) ID x 3 m	3 m	25306
PEEK Plug, 1/4"-28 threads	3-pk.	25319

Opti-Cap® Adaptors


27197 26551

Allow the use of the Hub-Cap Top with GL-45 solvent bottles.

Description	qty.	cat.#
Opti-Cap Adaptor (allows use of Hub-Cap w/GL-45 solvent bottles)	ea.	27197
Opti-Cap Adaptor Multi-Pack	3-pk.	27198
Opti-Cap Adaptor w/Hub-Cap	kit	26551

Related Items and Replacement Parts for Opti-Cap® GL-45 Bottle Tops

Description	qty.	cat.#
Mobile Phase Sparge Filter, 2 µm	ea.	25311
Mobile Phase Sparge Filter, 10 µm	ea.	25312
PTFE Tubing, 1/8" OD x 0.094" (2.4 mm) ID x 3 m	3 m	25307
PTFE Tubing, 1/8" OD x 0.063" (1.6 mm) ID x 3 m	3 m	25306
PEEK Plug, 1/4"-28 threads	3-pk.	25319
1 L Graduated Safety-Coated Bottle – GL-45 threads	ea.	25304
2 L Graduated Safety-Coated Bottle – GL-45 threads	ea.	25305

Which Bottle Top Do I Need?

I have a 4-Liter bottle...

Option 1: Hub-Cap Top (cat.# 26541)
or
Option 2*: Opti-Cap® Top (cat.# 25300) *plus* Hub-Cap Adaptor (cat.# 26538)
**Also available as a kit (cat.# 26540)*

Option 1


26541

Option 2*


25300 + 26538


**Also available as a kit (cat.# 26540)*

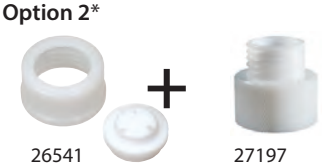
I have a GL-45 bottle...

Option 1: Opti-Cap® Top (cat.# 25300)
or
Option 2*: Hub-Cap Top (cat.# 26541) *plus* Opti-Cap® Adaptor (cat.# 27197)
**Also available as a kit (cat.# 26551)*

Option 1


25300

Option 2*


26541 + 27197


**Also available as a kit (cat.# 26551)*



Bottle not included.

Waste Overflow Indicator for LC Systems

- Avoid messy pooling around mobile phase waste containers.
- Audible alarm instantly alerts user, preventing overflow.
- Compact, battery-operated unit.
- Available for 4-liter and GL-45 solvent bottles.

The Restek® waste overflow indicator will help keep your mobile phase waste where it belongs—in the waste container! Compact, battery-operated unit fits securely on solvent bottles and accommodates two waste streams. An audible alarm is given as the solvent waste container approaches capacity, giving you time to empty or change the container. Another innovative design from Restek!

Description	qty.	cat.#
Waste Overflow Indicator for LC Systems, 4 Liter	ea.	26543
Waste Overflow Indicator for LC Systems, GL-45	ea.	26550
Replacement AA Battery for the Waste Overflow Indicator	ea.	26544
Replacement AA Batteries for the Waste Overflow Indicator	3-pk.	26545

Extend the life of columns and pump seals with Restek's Bluestem glass solvent filter

See **page 343**.



tech tip

Mobile Phase Additives with LC-MS
Mobile phase additives such as triethylamine, trifluoroacetic acid, and ion-pairing reagents can compete with sample ions, decreasing sensitivity and, in some cases, reducing sample ion intake into the MS. To obtain symmetric peaks and/or sufficient retention, use base deactivated silica, like Pinnacle® DB or high purity silicas like Ultra or Raptor™, that minimize the need for additives.



26395



Polypropylene Membrane Filters



25925

Hub-Cap Filter Kit

Kit includes: bottle adaptor, bottle adaptor nut, filter inlet cap, grid support, vacuum hose barb, tube compression fitting, 47 mm grid, 47 mm 0.22 µm filter membrane, 47 mm 0.45 µm filter membrane, 1/4" OD x 1/8" ID ultra chemical resistant, FEP-lined Tygon® tubing (3'), 6" x 6" box with shrink-wrap insert.

Includes universal threads designed for 4 L or Wheaton bottles. Use with GL-45 bottles requires Opti-Cap® adaptor (sold separately).



Bottle not included.

Assembles quickly and easily!



Unscrew and lift off top.



Place membrane filter on top of grid.



Reattach top.



Connect vacuum line to side port.

Description	qty.	cat.#
Hub-Cap Filter Kit for 4 L or Wheaton bottles	kit	26395
Replacement Parts	**qty.**	**cat.#**
Polypropylene Membrane Filters, 47 mm, 0.45 µm	100-pk.	26396
Polypropylene Membrane Filters, 47 mm, 0.22 µm	100-pk.	26397
Nylon Membrane Filters, 47 mm, 0.45 µm	100-pk.	26398
Nylon Membrane Filters, 47 mm, 0.22 µm	100-pk.	26399
Hub-Cap Filter Hose Barb	ea.	25925

Last Drop Filter

The flat filter element sits parallel to the bottom of the mobile phase reservoir, allowing the filter to draw 98% of the mobile phase without drawing air into the system. Conventional cylindrical mobile phase filters begin to draw air into the system when approximately 10% of the solvent remains in the reservoir. The Last Drop filter allows more analyses per batch of mobile phase and helps reduce hazardous waste. 22.1 mm OD.


25314

Description	qty.	cat.#
Last Drop Filter, 2 µm	ea.	25314
Last Drop Filter, 10 µm	ea.	25315


25008

Low-Pressure Slip-On Inlet Filter for Mobile Phase Reservoir

A 316 stainless steel tip with a Tefzel® collar seals to a corrosion-resistant 316 stainless steel filter element. The slip-on filter easily attaches to the pump inlet line, without the use of wrenches. The universal 1/8" OD tip accommodates standard PTFE tubing inner diameters. The cylindrical filter is standard 10 µm porosity. Fits Altex, ISCO, LDC, Varian, Waters, PerkinElmer, and other pumps.

Description	qty.	cat.#
Slip-On Inlet Filter	ea.	25008

Mobile Phase Sparge Filters

The sparge filter is an inexpensive way to prepare and maintain mobile phases free of dissolved gas. Filters are made from 316 stainless steel and PEEK, and they are compatible with most solvents. Connects to standard 1/8" OD (3.2 mm) PTFE tubing.


25311

Description	qty.	cat.#
Mobile Phase Sparge Filter, 2 µm	ea.	25311
Mobile Phase Sparge Filter, 10 µm	ea.	25312
Mobile Phase Sparge Filter, 20 µm	ea.	25313

UHP Pulse Dampener

UHPLC compatible

The UHP pulse dampener provides minimal flow pulsation at system pressures up to 18,000 psi. Its low dead volume (220 µL at atmospheric pressure) reduces overall system volume for UHP applications. The UHP pulse dampener has a stainless steel fluid path.


26549

Specifications:

Operating Pressure:	0–18,000 psi
Pulsation Dampening:	3:1 reduction in pulsation (dependent on pump characteristics and system volume and pressure)
Fluid Path Volume:	220 µL (atmospheric pressure)
	+44 µL (per 1,000 psi system pressure)
Wetted Materials:	316 SS; PTFE
Dimensions:	2.5" diameter x 2.0" high

Description	qty.	cat.#
UHP Pulse Dampener	ea.	26549

MiniPulse Pulse Dampener


25238

- Compact unit (2.5" x 1.5") can be placed almost anywhere.
- Small, 160 µL dead volume at atmospheric pressure.
- PEEK unit can withstand pressures to 5,000 psi (34,474 kPa).
- 316 stainless steel unit can withstand pressures to 6,000 psi (41,369 kPa).

Improve system baseline stability while increasing the total system volume by only 160 µL. The MiniPulse pulse dampener is ideal for applications where minimizing the total system volume is critical. Stainless steel and PEEK options for a wide range of applications.

Description	qty.	cat.#
MiniPulse Pulse Dampener, Stainless Steel	ea.	25238
MiniPulse Pulse Dampener, PEEK	ea.	25239

Solvent Debubbler

Bubbles in an LC system can cause check valve malfunctions and pump cavitation, seriously affecting pump performance. The debubbler removes bubbles from the fluid stream before it enters the pump.


25014

Special geometry at the base of the housing allows bubbles entrained in the inlet fluid stream to rise and be trapped in the reservoir. The gas/liquid interface is easily visible through the translucent wall of the device. Loosening the airtight cap releases the trapped gas. The debubbler features a polypropylene body and bracket; universal inlet and outlet connecting tips are made of 316 stainless steel and accept 0.063", 0.085", and 0.125" ID tubing.

Description	qty.	cat.#
Solvent Debubbler With Bracket	ea.	25014



26431





26392

Bluestem Glass Solvent Filter

- Restek® Bluestem glass solvent filter provides clean mobile phase to extend the life of columns and pump seals.
- 15 µm borosilicate glass frit sits lower than conventional glass filters to draw more mobile phase from each bottle.
- Blue filter stem allows instant visual confirmation of upright filter orientation.
- Connects to standard 1/8" OD (3.2 mm) PTFE tubing using your existing frit adaptor (also sold separately as cat.# 26392).

Prevent the particulates and microbial growth in your LC solvents from entering your instrument with the new Restek® Bluestem glass solvent filter.

Description	Similar to Agilent Part #	qty.	cat.#
Glass Solvent Filter, 15 µm frit	5041-2168	ea.	26431
Frit Adaptor, PTFE	5062-8517	4-pk.	26392

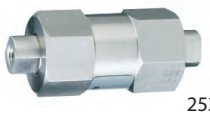
Mixers

- Reduced baseline noise.
- Increased sensitivity.
- Improved gradient accuracy for more reproducible results.
- Increased reaction efficiency in post-column derivatization.

An efficient cross-flow shearing mechanism and interchangeable cartridges produce vortex shear mixing over a wide range of flows.

HyperShear Static In-Line Mixers

Stainless steel or PEEK.



25342

Volume	Stainless Steel qty.	Stainless Steel cat.#	PEEK qty.	PEEK cat.#
1 µL	ea.	26409	ea.	26410
25 µL	ea.	26411	ea.	26412
50 µL	ea.	25341	ea.	26413
150 µL	ea.	25342	ea.	26414
250 µL	ea.	25343	ea.	26415

Ternary Tee Mixer

Stainless steel.



25138

Description	Volume	qty.	cat.#
Ternary Tee Mixer	25 µL	ea.	25138

Polypropylene Membrane Filters

Membrane Microfiltration Glassware



KT953825-0000

This 47 mm filtration apparatus with fritted glass support is recommended for routine filtration of corrosive liquids and removal of particles from LC solvents. The ground joint connection eliminates phthalate contamination that can occur when using silicone or neoprene stoppers. The support base has a coarse-porosity glass frit and an integral vacuum connection, located above the drip tip to prevent contamination of the vacuum line with filtrate droplets. Each apparatus includes a funnel, an anodized aluminum clamp, a 47 mm fritted glass support base, and a filtration flask.

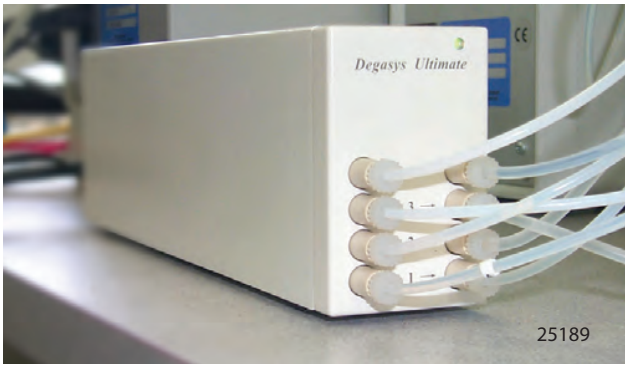
All-Glass Microfiltration Apparatus	qty.	cat.#
300 mL Funnel, 1,000 mL Flask	ea.	KT953825-0000
500 mL Funnel, 2,000 mL Flask	ea.	KT953835-0000
1000 mL Funnel, 4,000 mL Flask	ea.	KT953845-0000
Replacement Parts for Microfiltration Apparatus	**qty.**	**cat.#**
40/35 PTFE Joint Sleeve	6-pk.	KT676001-4035
Flask Cap, 40/35 Outer Joint	ea.	KT953830-0000
Fritted Glass Support, 47 mm, 40/35 Joint	ea.	KT953826-0000
Glass Funnel, 47 mm, 100 mL	ea.	KT953761-0000
Glass Funnel, 47 mm, 300 mL	ea.	KT953751-0000
Glass Funnel, 47 mm, 500 mL	ea.	KT953771-0000
Glass Funnel, 47 mm, 1,000 mL	ea.	KT953781-0000
Flask, 1,000 mL, 40/35 Joint	ea.	KT953827-0000
Flask, 2,000 mL, 40/35 Joint	ea.	KT953828-0000
Flask, 4,000 mL, 40/35 Joint	ea.	KT953829-0000
Aluminum Clamp, 47 mm	ea.	KT953753-0000
Membrane Filters	**qty.**	**cat.#**
Polypropylene Membrane Filters, 47 mm, 0.45 µm	100-pk.	26396
Polypropylene Membrane Filters, 47 mm, 0.22 µm	100-pk.	26397
Nylon Membrane Filters, 47 mm, 0.45 µm	100-pk.	26398
Nylon Membrane Filters, 47 mm, 0.22 µm	100-pk.	26399

Mobile Phase Degasser

Dissolved oxygen can cause flow rate instability and increased baseline noise. Also, it has a quenching effect on fluorescence detection and increases the background of UV detectors. Dissolved gases can out-gas in the LC system, forming bubbles in check valves, at connections, or in detector flow cells.

In-line vacuum degassing is more effective at removing dissolved gas from mobile phases than sonication or helium sparging. In-line degassers work by withdrawing gas across a gas-permeable membrane encased in a sealed chamber. Traditionally, the membrane has been made of PTFE tubing, but the Degasys Ultimate Degasser uses tubing composed of an amorphous fluoropolymer (AF) that is 200 to 300 times more gas permeable than PTFE. This translates into the ability to use shorter tubing for removing dissolved gas. This new material also has better tubular burst strength than PTFE. To prevent cross contamination, each channel on this Degasys unit is individually encased within its own vacuum chamber.

Description	Voltage	qty.	cat.#
Mobile Phase Degasser (4 Channel, 7 mL/min/channel)	110V	ea.	25189
Mobile Phase Degasser (4 Channel, 7 mL/min/channel)	220V	ea.	25194



Specifications:

Residual Oxygen[1]	0.9 ppm
Pressure Loss[1]	0.24 psi (1.65 kPa)
Internal Volume	500 µL
Wetted Parts	AF, PTFE, ETFE, PPS
Max Flow Rate	7 mL/min/channel

[1] At a flow rate of 1 mL/min

To prevent system damage, do not use the Degasys system with solutions containing TFA at concentrations greater than 5%.



Sidewinder LC Column Heater

- Easy to set up!
- Operation range: 5 °C above ambient to 85 °C, ±1 °C.
- Lightweight, compact design fits in small spaces.
- Column holder can be placed in any orientation.

This unique design completely encloses any LC analytical column up to 25 cm in length. Two lengths of heater jackets are available: the short column holder accommodates columns up to 10 cm in length, while the long column holder holds columns up to 25 cm in length. The control module provides optimum heating performance, accuracy to within 1 °C, and stability to within 0.1 °C. The new Sidewinder controller has fast 10 Hz sampling for improved responsiveness. The RS232 control allows external programming.

Description	Length	qty.	cat.#
Temperature Control Module and Column Holder	Long (25 cm)	ea.	26516
Temperature Control Module and Column Holder	Short (10 cm)	ea.	26517



Sidewinder LC Heater/Cooler Temperature Control Module and Column Holder

- Operation range: 5–55 °C, ±0.2 °C.
- Ability to program multiple temperature points.
- Accommodates columns up to 30 cm in length and 7.8 mm ID.
- Compact design.

The Sidewinder heater/cooler unit has a doubly insulated cover to maintain the programmed temperature to within 0.2 °C. The 24 V control unit provides maximum stability and rapid equilibration times. RS232 control allows external programming.

Description	qty.	cat.#
Sidewinder Heater/Cooler Temperature Control Module and Column Holder	ea.	26518

All Sidewinder temperature control products carry the globally recognized CE mark. Each unit meets the demanding electromagnetic emission standards of the new European Union Directives, United States standards, and Canadian standards.

Power requirements: All Sidewinder heater and heater/cooler units utilize a 24 VDC input to energize the system. This voltage is generated from a universal power supply included with each Sidewinder unit. Also included with each Sidewinder unit is a power cable (also known as a mains cable) for use in the U.S. The power cable supplies current from a wall or bench receptacle to the provided universal 24 VDC universal power supply.

FOR USE OUTSIDE THE U.S. If the Sidewinder unit is intended for use outside the U.S., an appropriate power cable must be purchased separately (not available from Restek).

Parker Balston® Nitrogen Gas Generators for LC-MS

- Turn compressed air into ultra-pure nitrogen (up to 99.5%).
- Flows from 1 to 44 L/min.
- Models N2-04, N2-14, N2-22, and N2-35 require no electricity.
- Safe, reliable, low maintenance.
- Maintenance kits include replacement filters.


CE 22130


CE 22129

Specifications	NitroFlow Lab	N2-04	N2-14	N2-22 or N2-22A	N2-35 or N2-35A
Maximum Nitrogen Flow Rate:	32 L/min	8 L/min	36 L/min	N2-22: 44 L/min N2-22A: 29 L/min	44 L/min
Nitrogen Purity:	99.50%	99%	95.0%–99.5%	99%	99%
Min/Max Inlet Pressure:	N/A	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig	60 psig/145 psig
Electrical Requirements:	120 VAC/60 Hz	None	None	N2-22: None N2-22A: 120 VAC/60 Hz	N2-35: None N2-35A: 120 VAC/60 Hz
Dimensions:	27.6" h x 35.4" w x 12.2" d (70 cm x 90 cm x 31 cm)	11" h x 13" w x 16" d (27 cm x 34 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)	50" h x 16" w x 16" d (127 cm x 41 cm x 41 cm)
Shipping Weight:	205 lb (93 kg)	43 lb (20 kg)	75 lb (34 kg)	N2-22: 101 lb (46 kg) N2-22A: 106 lb (48 kg)	N2-35: 115 lb (52 kg) N2-35A: 119 lb (54 kg)

Nitrogen Generators for LC-MS	Model #	qty.	cat.#
Nitrogen Generator for LC-MS	NitroFlow Lab Model, 32 L/min max. flow	ea.	22129
Nitrogen Generator for LC-MS	N2-04 Model for ELSD, 8 L/min max. flow	ea.	22130
Nitrogen Generator for LC-MS	N2-14 (general purpose) 36 L/min max. flow	ea.	20677
Nitrogen Generator for LC-MS	N2-22 Model, 44 L/min max. flow	ea.	22131
Nitrogen Generator for LC-MS	N2-22A Model, 29 L/min max. flow	ea.	22132
Nitrogen Generator for LC-MS	N2-35 Model, 44 L/min max. flow	ea.	22133
Nitrogen Generator for LC-MS Includes: Oxygen analyzer and audible alarm (monitors oxygen in nitrogen stream and signals high or low concentrations)	N2-35A Model, 44 L/min max. flow	ea.	22134
Maintenance Kits	**Model #**	**qty.**	**cat.#**
Maintenance Kit Includes: carbon filter	for NitroFlow Lab	kit	22156
6-Month Maintenance Kit* Includes: 1st stage prefilter, 2nd stage prefilter, and final filter (1 each)	for N2-14, N2-14A, 75-72, 75-720NA	kit	21648
6-Month Maintenance Kit With Carbon Filter* Includes: 1st stage prefilter, 2nd stage prefilter, hydrocarbon scrubber, and final filter (1 each)	for N2-14, N2-14A, 75-72, 75-720NA	kit	22135
Generator Maintenance Kit Includes: 1st and 2nd stage prefilters (1 each) and 1 final filter	for HPZA-3500, HPZA-7000, HPZA-18000, HPZA-30000, and 75-80 (Zero Air); N2-04 (Nitrogen); and TOC-1250 (TOC)	kit	21647

*The manufacturer recommends maintenance for this unit every 6 months.
International power cords are available. Contact Customer Service or your Restek® representative to order.


CE 20677

Need to clean up your nitrogen stream for LC-MS?

Check out our Restek® Super Clean® gas trapping system.

See **page 288**.

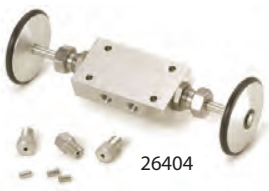
www.restek.com/gas


22061
22062


26400


26401


26402


26404


26403


26406


26407

Valves for HPLC

Our valves have low internal volumes and are rated to 15,000 psi (103,421 kPa). They feature a two-piece stem assembly in which the rotating upper shank is coupled through a ball joint to a static lower stem. Only finger-tight torque is required to make the seal.

Description	qty.	cat.#
Through Valve for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	ea.	26400
Angle Valve for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	ea.	26401
Bottom Vent Valve for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	ea.	26402
Side Vent Valve for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	ea.	26403
Dual-Stem Three-Way Valve for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	ea.	26404
Prime/Purge Valve for HPLC, 1/4-28 Flanged Seat, Stainless Steel, with Tubing and Fittings	ea.	26406
Prime/Purge Valve Repair Kit for Prime/Purge Valve (includes: soft seal (2), PTFE O-ring (2), 7/32 hex key)	kit	26407


25017


25020

25018

Backpressure Regulators

Backpressure regulators can improve detector performance by preventing bubble formation in the detector flow cell. They also are useful in post-column reaction lines and between detectors and fraction collectors in preparatory work. Regulators are superior to more specific alternative solutions, like small-bore tubing, in which pressure varies with flow rate.

Our end-of-line and flow-through backpressure regulators are adjustable to ensure constant backpressure over a wide range of mobile phase viscosities and flow rates. The end-of-line model is available with 1/4-28 plastic flange-type fittings or high-pressure 1/16" compression fittings; this design adjusts from 15 to 60 psi (103 to 414 kPa). The flow-through design has 1/16" compression fittings and is adjustable from 7 to 75 psi (48 to 517 kPa).

Description	qty.	cat.#
Backpressure Regulator: end-of-line, 1/16" OD tubing, flanged	ea.	25017
Backpressure Regulator: end-of-line, high-pressure seat	ea.	25018
Backpressure Regulator: flow-through, 5 µL internal volume	ea.	25020

also available

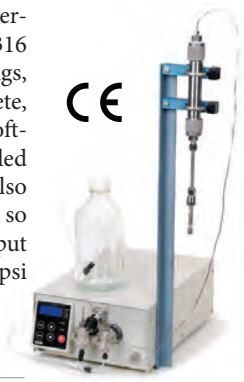
Dampeners.

See **page 342**.



Restek® Pack in a Box Kit

Restek's Pack in a Box kit is a complete column-packing system. Everything you need to pack your own analytical HPLC columns is included: pump, 20 mL reservoir, column hardware (150 x 4.6 mm, 316 stainless steel tubing with end-fittings, frits, nuts, and ferrules for two complete, empty columns), and system control software (computer not included). Detailed packing instructions and a DVD are also included. The packing pump is electric, so no pressurized air is required. AC input requirement: 85–265 VAC. 10,000 psi maximum pressure.



26408

Description	qty.	cat.#
Pack in a Box Kit	kit	26408



Empty Chromatography Columns

- 316 stainless steel tubing complete with end-fittings, frits, nuts, and ferrules.
- Preassembled prior to shipment, unless otherwise requested.
- Internal 1/16" seats are compatible with Valco® and Parker fittings.

Length	2.1 mm ID cat.#	3.2 mm ID cat.#	4.6 mm ID cat.#
1/4" OD Tubing			
30 mm	25118	25124	25130
50 mm	25119	25125	25131
100 mm	25120	25126	25132
150 mm	25121	25127	25133
200 mm	25122	25128	25134
250 mm	25123	25129	25135

Bio-Safe Column System (PEEK)

- Completely biocompatible.
- 100% metal free.
- Stable to 8,000 psi.

Bio-Safe columns are biocompatible and precision-machined from virgin PEEK (polyetheretherketone), a strong, inert polymer material.

Product Specs
- 4.6 mm ID x 30 mm length column with end fittings.
- 2.0 µm frits.

Description	qty.	cat.#
Bio-Safe Column System, PEEK, 4.6 mm x 30 mm, 2.0 µm	ea.	26546





Column End-Fittings

- Fittings with distribution cone are intended for use on 3.0–4.6 mm ID HPLC columns.
- Fittings with flat bottom are intended for use on 1.0–3.0 mm ID HPLC columns.

These 1/4" compression end-fittings are compatible with 1/16" connecting tubing using Valco® and Parker fittings.

Description	qty.	cat.#
Column End-Fitting with Distribution Cone	ea.	25077
Column End-Fitting with Flat Bottom	ea.	25078

HPLC Column Tubing

Restek® tubing is manufactured from fine, chromatographic-grade 316 stainless steel. It is corrosion resistant, ultrasonically cleaned, and passivated. We polish the tubing and promise a burr-free cut. You can use this tubing immediately—there is no need for additional treatment.



Length	2.1 mm ID cat.#	3.2 mm ID cat.#	4.6 mm ID cat.#
1/4" OD Tubing			
30 mm	25100	25106	25112
50 mm	25101	25107	25113
100 mm	25102	25108	25114
150 mm	25103	25109	25115
200 mm	25104	25110	25116
250 mm	25105	25111	25117



Packing particle size:	Use this pore size:
3–4 µm:	0.5 µm
5–20 µm:	2.0 µm

1/4" HPLC Frits

We manufacture our frits from fine, chromatographic-grade 316 stainless steel, and we offer sizes to fit most column and pore sizes. To choose the correct frit, check its pore size compatibility with the particle size of the packing in the column. If the packing has a smaller particle size than the pore size of the frit, the packing can clog the frit.

ID	Pore Size	qty.	cat.#
4.6 mm	2.0 µm	10-pk.	25071
4.6 mm	0.5 µm	10-pk.	25072
3.2 mm	2.0 µm	10-pk.	25073
3.2 mm	0.5 µm	10-pk.	25074
2.1 mm	2.0 µm	10-pk.	25075
2.1 mm	0.5 µm	10-pk.	25076



22292

Syringe for Hitachi LC Autosamplers

SGE

Volume	SGE Model	cat.#	qty.	Restek cat.#
500 µL, M10 X1 Thread	500C-HITACH1	007660	ea.	22292



22297

Syringes for PerkinElmer LC Autosamplers

SGE

Volume	SGE Model	cat.#	qty.	Restek cat.#
250 µL, 1/4-28 UNF Thread	250D-CX-GT	006995	ea.	22297
500 µL, 1/4-28 UNF Thread	500D-CX-GT	007995	ea.	22298

Syringe for Waters WISP LC Autosamplers

PTFE-tipped plungers

Hamilton

Volume	Hamilton Model	cat.#	qty.	Restek cat.#
250 µL, 1/4-28 UNF Thread	1725	80024	ea.	24529



22294

SGE

Volume	SGE Model	cat.#	qty.	Restek cat.#
250 µL, 1/4-28 UNF Thread	250D-WISP	006690	ea.	22294

Syringes for CTC LC Autosamplers

Hamilton

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	cat.#	qty.	Restek cat.#
10 µL	N	22s	2"/51 mm	3	701N	203073	ea.	22743
25 µL	N	22s	2"/51 mm	3	1702N	203075	ea.	22744
100 µL	N	22s	2"/51 mm	3	1710N Slim Line*	203077	ea.	22745
100 µL	N	22	2"/51 mm	3	1710N	203235	ea.	22746
250 µL	N	22	2"/51 mm	3	1725N	203079	ea.	22747
500 µL	N	22	2"/51 mm	3	1750N	203349	ea.	22748

*Barrel OD = 6.7 mm; all other 25 µL and 100 µL syringes have a 7.9 mm barrel OD.



22746



22737

SGE

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	cat.#	qty.	Restek cat.#
10 µL	F	22s	2"/51 mm	LC	10F-CTC-LC	002710	ea.	22737
100 µL*	R	22s	2"/51 mm	LC	100R-C/T-GT-LC	005330	ea.	22741
500 µL*	F	22s	2"/51 mm	LC	500F-CTC-GT-LC(0.41)	007720	ea.	22742

*Gas-tight syringe.

Guide to Needle Termination Codes

Hamilton:

(N) Cemented Needle

SGE:

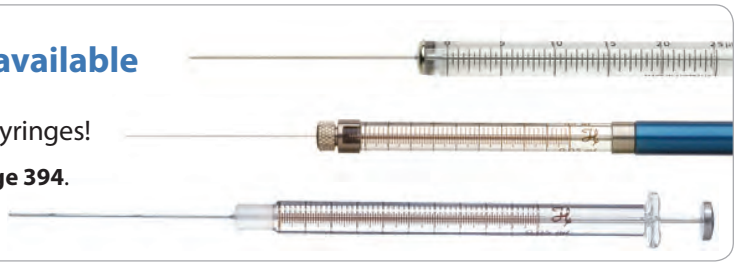
(F) Fixed Needle

(R) Removable Needle

also available

More syringes!

See **page 394**.



Well Plates

- Polypropylene plates with round-bottom wells reduce liquid retention; conical bottom provides optimal recovery of reagents.
- Nunc® shared wall technology allows increased well volume for optimum storage capacity and improved mixing.
- Round well shape is ideal for applications that require vortexing.
- Ideal for sample collection, storage, sampling, and combinatorial chemistry and library applications.
- Fits most autosampler compartments.
- All microplates manufactured by Nunc® meet the recommendation of American National Standards Institute (ANSI) (ANSI/SBS 1-2004).

Description	Well Shape	Well Bottom	qty.	cat.#
0.45 mL 96-Well Plates	round	conical	20-pk.	26497
0.45 mL 96-Well Plates	round	conical	case of 120	26496
1.3 mL 96-Well Plates	round	round	5-pk.	26495
1.3 mL 96-Well Plates	round	round	case of 50	26494
2.0 mL 96-Well Plates	round	round	5-pk.	26493
2.0 mL 96-Well Plates	round	round	case of 60	26492



26496


26494


26492

Universal Sealing Mats

- Protect contents and prevent carryover with pre-slit cap mats.
- Chemically resistant, silicone mats are excellent for compound storage to -80 °C.
- Pre-slit mats pierceable by autosampler needle, pipette tip, or probe.
- Universal mat for sealing 0.45, 1.3, and 2.0 mL plates.

Description	qty.	cat.#
Universal Sealing Mat	10-pk.	26499
Universal Sealing Mat	case of 50	26498



26498

Thomson SINGLE StEP® Filter Vials

Sample filtration that's economical, eco-friendly, and fast!



- Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Pre-slit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Low dead volume units feature rugged polypropylene vial and insert with 450 µL loading capacity.
- Fit most standard 12x32 mm autosamplers, including UHPLC instruments.

See **page 410**.

www.restek.com/**singlestep**