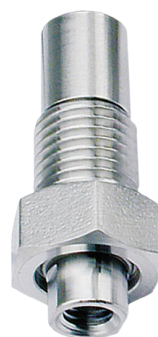


hplc & uhplc oem systems

In the following pages you will find a list of replacement components designed specifically for OEM HPLC/UHPLC solvent delivery systems. At Optimize Technologies, we precision machine our components to the most exacting standards in the industry. Everything in the manufacturing process is controlled to ensure the continuing quality that has long been associated with the Optimize name. From the individual matching of check valve ball and seat sets to the proprietary blend of materials in our seals - experience the Optimize advantage.

Every replacement component we offer is designed to meet or exceed original equipment specifications.

Guaranteed.



optimize and oem components



Most instrument manufacturers will tell you quite emphatically that for optimal instrument performance, you should only use components that match their performance specifications. We could not agree more. Every replacement component we offer is designed to meet or exceed original equipment specifications - guaranteed. In fact, several major OEM manufacturers incorporate Optimize components as original equipment on their new HPLC and UHPLC instruments. They realize the positive impact Optimize quality can have on instrument performance.

optimize innovation



Innovation is our driving force. Although we offer a comprehensive selection of components for most brands of HPLC systems, we are always in the process of R&D to discover new products that will save your laboratory time and money. If you have a need for a product you do not see in this catalog, please call a technical support representative to discuss your particular fluid handling needs.

HPLC Finder™

	BRAND	MODELS	PAGE NO.
A	ABI	Spectraflow 400	50
	Agilent	1050, 1090, 1100, 1200	51-53
	Alcott	Micromeritics 760, 765	56
	Anspec	SM 909	56
B	BAS	PM-48	64
	Beckman/Altex	100A, 105, 110A/B, 110 Prep, 112/112M, 114/114M, 116, 118, 125, 126, 127, 128	54
	Bio-Rad	1330, 1350, 1350T, 2700, 2800	55
	Bischoff	2200, 2250	56
D-G	Dionex	DQP, GPM-1&2, DRP, DXP, AGP, 2000, 4000, GP-40, IP-20, GP-50, IP-25	57
	Dupont	8800	64
	ESA	Model 580, 582, 584, 5700 SDM	62-64
	Gilson	All Pumps with 5, 10 or 25 mL S/SC Heads	67-68
	Gynkotek	300, M480	50
H-J	Hewlett Packard	See Agilent	51-53
	Hitachi	655, L-6000, L-6200/6200A, L-7100/LaChrom, L-2100, Smash Pump, L-2130, 7200, 7250	58
	Jasco	BIP-1, 880/980 Series, PU-2080, 2085, 2089, 1580-C02, 980, 1586, 2086, 986	59
K-P	Kratos	Spectraflow 400	50
	LDC/Milton Roy	All Analytical Pumps (including Constametric, Minimetric, Minipump)	65
	LKB/Amersham/ Pharmacia	2150, 2248, 2250	60
	Perkin-Elmer	Series 1, 2, 3, 3B, 4, 10, 100, Model 250, 200, 400, 410, 620, Integral 4000	61
R-S	Rainin	HP, HPX, HPXL, SD 200/300, Prostar 210/215	67-68
	Shimadzu	LC-6A, LC-7A, LC-8A, LC-9A, LC-10AT, LC-10ATVP, LC-10AD, LC-10ADVP, LC-10AS, LC-600 LC-AD/LC-20 AB, LC-20 AT, LC-2010, GP-20 & 50, LC-20 ADXR, SIL-10ADUP, GEP	62-63
	Spectra-Physics	8700, 8800, 8810, IsoChrom, P-Series, 8700XR, 8750	66
	SSI	200 Series, Model 300	64
	Systemex	CA1000, CA500	50
T-W	Thermo	See LDC/Milton Roy, Spectra-Physics for model listings	65-66
	Varian	2010, 2510, 9000 Star/9000 Series, Prostar 210/215	67-68
	Waters	6K/6KA, Alliance, 2690, 2695, 2790, 2795, M45/45G, M501, 510, 515, 590, 600/600E, 610, 616, 625/626, 650, 6000, 6000A, DeltaPrep 3000 (#4 and #6 Heads), 1525, 1515	69-72

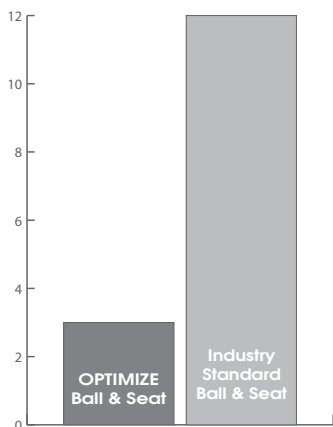
opti-max[®] check valves



Check valves are a crucial, yet often overlooked component of the HPLC system. While a properly functioning check valve is virtually unnoticeable, an improperly functioning check valve can lead to a noisy baseline, pressure fluctuations, and inconsistent flow. Because a check valve can have such a large impact on the performance of your pump, it is imperative when choosing your replacement check valves to select the very best. Of course, we believe that the Opti-Max check valve system is the very best - otherwise we wouldn't sell it.

Read on for the innovations we have implemented in our check valves. And as with any Optimize part—if you're not satisfied, return it for a refund.

Bubbles of nitrogen/minute
at 90 psi which leak from
ball & seat.



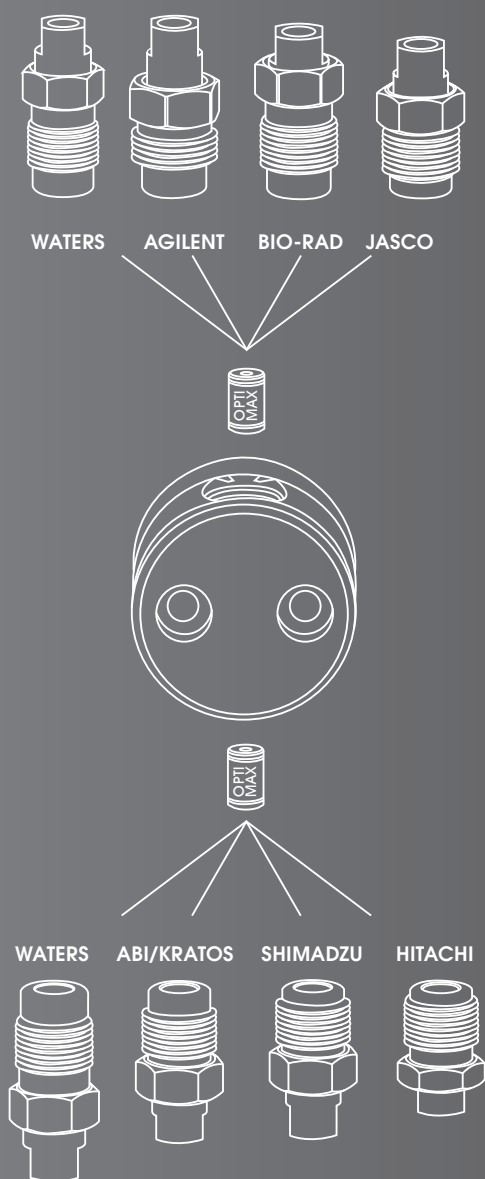
A Better Check Valve

Tighter specifications make a better valve. A check valve can only function effectively if it activates and seals properly in response to the piston cycle. The seating process is fairly simple - the ball lands on the seat and creates a seal - but there are many factors that contribute to optimal seating. At Optimize, we engineer our check valves to be as responsive as possible, scrutinizing every detail.

Each ball and seat set is individually matched to ensure a lock-and-key fit. This guarantees 3 bubbles/minute or less in the industry standard nitrogen bubble test; common acceptable standards are 12 bubbles or less. We have also minimized the ball travel distance within the check valve; less travel distance equals quicker seating and more accurate pump metering.

opti-max[®] cartridges

a universal solution



A single Opti-Max cartridge is interchangeable across multiple pump brands and can function in either the inlet or outlet position.

The same Opti-Max cartridge will fit into Opti-Max housings for pumps manufactured by Waters, Shimadzu, Agilent/HP, and many other OEM solvent delivery systems.

The modular cartridge system allows you to minimize the number of spare check valve cartridges you keep on hand and dramatically reduce the cost of inventory required to cover your maintenance needs.

opti-max[®] free-turn housing

"Make it easier for the user" is the mantra at Optimize. We were the first to introduce the concept of the Opti-Max Free-Turn[®] housing where the thread that tightens a check valve housing into the pump head spins independently from the inner housing body. This enables you to change out a check valve without having to disconnect any tubing - an idea born in efficiency.

Most Opti-Max check valve housings feature the Free-Turn design. To see if they are available for your system, look for the Free-Turn logo  next to the Opti-Max listings for your HPLC.

opti-max[®] FREE-TURN[®] housings can be removed with the tubing still attached, accelerating check valve maintenance while reducing fitting wear.

FREE-TURN[®] IN ACTION



1 Place wrench on the hex nut and turn. The hex nut or thread ring will turn independently of the fitting connection.



2 Continue to unscrew the thread ring until the entire check valve assembly is removed from the pump head.



3 Discard old check valve cartridge & replace with new cartridge.



4 Install entire assembly into pump head.

opti-max[®] materials

Opti-Max cartridges are available in several different sizes and combinations of body and ball/seat materials, all manufactured and leak tested to meet the same high standard of performance.

Our Recommendation: **Stainless/Ceramic**

For high mechanical strength, stainless steel cartridges are the best choice. Ceramic ball & seat sets have higher density, which can make the valve more responsive and help the ball seat faster in lighter solvents.

For biocompatible HPLC systems with nonmetallic flow paths or high percentages of THF, use PEEK cartridges with ceramic balls & seats.

Both cartridge body materials listed above are also available with ruby and sapphire ball & seat combos. Each pair is matched to the same exacting standards as our ceramic ball/seat sets.



CARTRIDGE MATERIAL OPTIONS | 2 PACKS



1/32"	10-39-02004	Cartridge fits in all housings that will take 1/16" and 1/8" cartridge. This size is only available in PEEK/PPS body with ruby/sapphire ball & seat.
1/16"	10-46-02004	Recommended: Microbore stainless steel cartridge body with ceramic ball & seat
	10-48-02004	Microbore PEEK cartridge body with ceramic ball & seat
	10-47-02004	Microbore stainless steel cartridge body with ruby ball & sapphire seat
	10-49-02004	Microbore PEEK cartridge body with ruby ball & sapphire seat
1/8"	10-56-02004	Recommended: Standard stainless steel cartridge with ceramic ball & seat
	10-58-02004	Standard PEEK cartridge body with ceramic ball & seat
	10-57-02004	Standard stainless steel cartridge with ruby ball & sapphire seat
	10-59-02004	Standard PEEK cartridge body with ruby ball & sapphire seat
3/16"	10-66-02005	Recommended: Stainless steel cartridge with ceramic ball & seat
	10-68-02005	PEEK cartridge with ceramic ball & seat
	10-67-02005	Stainless steel cartridge with ruby ball & sapphire seat
	10-69-02005	PEEK cartridge with ruby ball & sapphire seat



1/16"	10-76-02004	OPTI-MAX EXP Single Ball & seat Cartridge - Rated to 18,000 psi (1,250 bar) stainless steel cartridge body with ceramic ball & seat.
	10-86-02004	OPTI-MAX EXP Double Ball & Seat Cartridge - Rated to 20,000 psi (1,400 bar) Stainless steel cartridge body With ceramic balls & seats.

*We cannot guarantee the Opti-Max check valve cartridge will fit in OEM housings. Opti-Max cartridges must be used with Opti-Max housing for optimal results.

seals & pistons

Seals and pistons are, by design, a consumable part of the HPLC pump and should be replaced on a regular preventative maintenance schedule. To maintain peak performance and avoid unplanned downtime, piston seals should be replaced every three to six months while sapphire pistons require inspection every six months with yearly or as-needed replacement.

seals



Optimize Piston Seals are the longest lasting seals on the market. Machined from either of two proprietary polymer blends, UHMW-PE or ITB, Optimize Seals provide the ultimate in high pressure sealing capacity. For mostly aqueous buffered mobile phases, Opti-Seal UHMW-polyethylene is the wisest choice. Specially designed to be more resistant to abrasion and wear than standard polyethylene seals, they can last up to seven times longer under mostly aqueous conditions. Despite the UHMW-PE's durability, it has a coefficient of friction approaching that of PTFE. The homogenous polymer nature leads to less shedding, but when it does occur, a larger, more fibrous particle is produced which is easily caught by a filter frit.

PTFE-based Improved Blend (ITB) seals are a superior choice for applications with elevated temperatures, high organic content, or when the broadest possible solvent compatibility is required. ITB seals tend to be softer than those made from UHMW-PE, making them more forgiving at high pressures where piston side-loading or misalignment may occur. This softer nature also leads to more shedding, but the ITB proprietary blend is designed to shed particles that are large enough to be caught at the surface of a standard 2 μm frit, not embed within it.



pistons

Optimize sapphire pistons offer optimal concentricity and resistance to wear. Each sapphire rod is specifically cut in relation to the grain of the crystal lattice, yielding maximal resistance to breakage and superior wear characteristics. Attachment of the rod to the piston ferrule is performed through a proprietary process ensuring concentricity. This is an important, often overlooked procedure parameter that has a direct effect on seal lifetime.

seal form tool kit

Installing a piston seal can be a tricky undertaking. A relatively small seal must be fit into the seal cavity in such a way to ensure that it is pressed in evenly without distortion or damage. The Optimize Seal Forming/Insertion Tool Kit was specifically designed to aid in this endeavor.

This kit contains three tools to accommodate all of your HPLC piston seals. One end has a beveled cavity for seal forming, while the other is an insertion support for perfect seal installation. Also included with each kit are complete instructions for maximizing seal life and a solvent compatibility guide to aid in prudent seal material selection.

This kit includes three sizes assuring the perfect seal fit every time



1 Forming cavities in three different sizes lets you pick the best tool for the seal you are installing.



2 The piston seal is formed by pressing the tool onto the seal jacket.



3 Then, the seal is pressed into the pump head seal cavity using the insertion support.

Seal Forming/Insertion Tool

10-10-02695

Seal Forming/Insertion Tool Kit Includes: Three Forming/Insertion Tools (Small, Medium, Large), Instruction Booklet & Solvent Compatibility Chart

Tip: For best performance, always use methanol or isopropanol to presoak piston seals for five to ten minutes prior to installation and wet all mating surfaces (seal, piston, seal cavity) as the seal is formed and installed.

opti-max[®] conversion kits

Make the switch to Opti-Max for less than ever before with Opti-Max Conversion Kits. These kits contain all the check valves you need for your HPLC pump grouped under a single part number and priced at **over 20% off list!**

Each kit includes all the Opti-Max check valve housings and cartridges you need to convert your HPLC instrument. Simply find your HPLC pump/brand model in the list below and use the conversion kit part number to order. By default, each kit includes our recommended Opti-Max cartridge—the stainless steel/ceramic Opti-Max (PEEK cartridges are supplied for biocompatible systems). However, if you'd like to substitute an alternate material the kit price will not be affected.



Bio-Rad
23-56-02139



Dionex
25-58-01242



Hitachi
28-46-02148



LDC
31-56-02153

BRAND	MODEL	CONVERSION KIT PART #	INLETS	OUTLETS
ABI/Kratos	Spectraflow 400	21-56-02136	1	1
Agilent/HP	1090 Systems	27-38-01959	1	1
	1050/1100/1200	27-56-01330	0	1
Beckman	100A, 126,	22-66-02137	2	2
	110A/B, 112/114, 116	22-66-02138	1	1
Bio-Rad	1330, 1350	23-56-02139	2	2
Bischoff	2200 Microbore	24-46-02141	1	1
	2200, SM909, 760	24-56-02140	1	1
Dionex	DQP, GPM-1, DRP, DP-1	25-58-02143	1	1
	GPM-2, XP, AGP, 2000, 4000		1	1
GBC	1150, 1120	47-46-02271	1	1
	1150, 1120	47-48-02271	1	1
Gilson/Rainin	5, 10, & 25 mL Head	26-56-02144	1	1
Gynkotek	300, M480,	44-46-02145	1	1
Hitachi	655, L-6000, L-6200, L-6200A	28-46-02147	1	1
	7100	28-46-02148	1	1
ISCO	2300, 2350	29-66-02149	1	1
Jasco	BIP-1	42-56-02150	2	2
	880, 980	42-56-02151	1	1

opti-max[®]

conversion kits

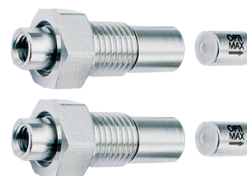
BRAND	MODEL	CONVERSION KIT PART #	INLETS	OUTLETS
Kontron	420, 422	45-46-02223	1	1
LDC/Milton Roy	Minipump, Minimetric	31-56-02152	1	1
	Constametric, Mini Duplex	31-56-02153	2	2
LKB/Amersham/ Pharmacia	2150, 2248	32-46-02154	2	2
Perkin-Elmer	Series 1, 2, 3, 3B	33-56-02155	2	2
	Series 10	33-56-02156	1	1
	4, 200, 400, 410, 4000, 250	33-56-02157	2	1
Shimadzu	LC-600/9A, LC-10AD	34-46-02158	2	2
	LC-10AT, LC-10ATVP	34-46-02160	1	1
	LC-10ADV/LC-20AD/LC-20AB/ LC2010	34-46-02627	2	2
	LC-6A, LC-10AS	34-56-02159	1	1
	LC-8A	34-66-02114	2	2
	LC-20ABXR, LC-20ABXR	34-86-04139	2	2
Spectra-Physics	8700, 8800, 8810, IsoChrom	35-56-02161	1	1
	P-Series	35-56-02162	1	1
SSI	200 Series, Model 300	36-56-02163	1	1
Thermo-Electron	Surveyor L-Pump	50-46-03645	1	1
Varian	9000 Star, 9010, 9012	38-56-01704	0	1
	2010	38-56-02164	2	2
	2510	38-56-02165	1	1
Waters	616	39-46-02168	2	2
	625/626	39-48-02170	2	2
	Alliance 2690, 2695, 2790, 2795	39-46-02187	2	0
	100µL/Dual Head Systems	39-56-02166	2	2
	100µL/Single Head Systems	39-56-02186	1	1
	Extended Flow Systems	39-66-01712	1	1
	225µL/Head	39-66-02167	2	2
	400µL & 900µL/Head	39-66-02169	0	2



Perkin Elmer
33-56-02157



Shimadzu
34-46-02158



Waters
39-46-02187



Waters
39-48-02170

abi, kratos, sysmex & gynkotech



OPTI-MAX for ABI, Kratos, & Gynkotech

opti-max[®] check valves

ABI/Kratos Spectraflow 400

		OEM #
21-56-00451	OPTI-MAX Inlet Housing & Cartridge	7200-0060, 1400-1999
21-56-00460	OPTI-MAX Outlet Housing & Cartridge	7200-0062, 1400-2250
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" ball, 2/Pk	

Gynkotech 300 & M480

		OEM #
44-46-00451	OPTI-MAX Inlet Housing & Cartridge	5005-3200
44-46-00460	OPTI-MAX Outlet Housing & Cartridge	5005-3100
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.

seals & pistons

ABI/Kratos Spectraflow 400

		OEM #
21-36-00437	OPTI-SEAL UHMW PE* Piston Seal, w/Backup Ring	7200-0087, 7200-0088
21-36-00439	OPTI-SEAL UHMW PE* Piston Seal, w/Backup Ring, 10/Pack	7200-0087, 7200-0088
21-34-00434	Sapphire Piston	1400-1970

Gynkotech 300 & M480

		OEM #
44-36-00437	OPTI-SEAL UHMW PE* Piston Seal w/Backup Ring	2266-0304
44-36-00439	OPTI-SEAL UHMW PE* Piston Seal, w/Backup Ring 10/Pack	
44-34-00434	Sapphire Piston	2267-0032

Sysmex CA1000, CA500

21-36-00437	OPTI-SEAL UHMW PE* Piston Seal	
21-36-00439	OPTI-SEAL UHMW PE* Piston Seal, 10/Pack	

*UHMW PE - Ultra High Molecular Weight Polyethylene



21-36-00437/
44-36-00437



21-34-00434/
44-34-00434

lamps

ABI/Kratos Spectraflow 400, Gynkotech 300 & M480

		OEM #
44-32-02838	DoubleLife™ Deuterium Lamp, for Gynkotech SP6	
21-32-02812	Deuterium Lamp, SF 757, 759A, 770, 773,783, 783A, 785A, 970, 980, 15X, 120A, 130A, 230A, 270A, 471A	2900-0489



ABI/Kratos
21-32-02812

agilent / hewlett-packard

Purge Valve Upgrade Kit for Agilent/HP 1100/1050

In-line filtration is a necessity for protecting downstream components from damage and blockages due to particulates. The placement of the Agilent/HP PTFE filter is buried deep within the pump head, making what is usually a quick job into a laborious procedure. What use is a filter if it is never replaced? Optimize continues its tradition of innovative solutions with the Purge Valve Upgrade Kit.

The Purge Valve Upgrade Kit resolves this difficulty by permanently replacing the PTFE filter with a low volume PEEK insert and then relocating the filter frit to an easily accessible holder on the side of the purge valve. What once was a cumbersome process of changing the filter becomes a quick and easy task.



Our **FREE-TURN®** filter holder lets you change frits without removing any tubing.

Purge Valve Upgrade Kit

27-31-02277	Purge Valve Upgrade Kit for Agilent/HP 1100, 1050 Includes: Filter Holder, PEEK Insert and 2 Filter Elements (2.0 μm)
10-04-00100	Replacement Frits, 0.5 μm , 10/Pk
10-04-00103	Replacement Frits, 2.0 μm , 10/Pk

agilent / hewlett-packard (continued)



OPTI-MAX for Agilent



Active Inlet Check Valve Cartridge



Agilent/HP 1090, Outlet Housing & Cartridge



27-36-01570



27-36-02364



27-36-02366



27-36-01572



27-34-00658



27-36-00663



27-36-00665



27-34-00671

opti-max[®] check valves

Agilent/HP 1050, 1100, 1200

OEM #

27-56-01330	OPTI-MAX Outlet Housing & Cartridge	G1311-60012, G1312-60012
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	
27-38-02363	Replacement Cartridge for Active Inlet Valve	5062-8562

OPTIONS: Stainless Steel/Ceramic OPTI-MAX Cartridges are listed above. For other options, please see page 45.

oem-type check valves

Agilent/HP 1090

OEM #

27-38-00680	Inlet Housing & Cartridge	79835-25211
27-38-00682	Outlet Housing & Cartridge	79835-25211
27-38-00672	Replacement Cartridges, 2/Pk	79835-67101

seals, pistons & other parts

Agilent/HP 1050, 1100

OEM #

27-36-01570	OPTI-SEAL UHMW-PE* Piston Seal	0905-1420
27-36-01571	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
27-36-01572	ITB PTFE** Piston Seal	5063-6589
27-36-01573	ITB PTFE** Piston Seal, 10/Pk	
27-36-03073	PTFE*** Pump Seal, Green, Premium Grade	
27-36-03074	PTFE*** Pump Seal, Green, Premium Grade, 10/Pk	
27-36-02364	OPTI-SEAL UHMW-PE* Wash Seal	0905-1175
27-36-02365	OPTI-SEAL UHMW-PE* Wash Seal, 10/Pk	
27-36-02366	ITB PTFE** Wash Seal	0905-1175
27-36-02367	ITB PTFE** Wash Seal, 10/Pk	
27-36-02851	Gasket Wash Seal, 6/Pk	5062-2484
27-04-02852	PTFE Frits, 5/Pk	01018-22707
27-31-02853	2-in-1 Seal Cap (See adjacent page.)	5062-2485, 5001-3707
27-34-00658	Sapphire Piston	5063-6586

Agilent/HP 1090

OEM #

27-36-00663	OPTI-SEAL UHMW-PE* Piston Seal	0905-1194
27-36-00664	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
27-36-00665	ITB PTFE** Piston Seal	5062-2494
27-36-00666	ITB PTFE** Piston Seal, 10/Pk	
27-34-00671	Sapphire Piston	3980-0672

*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

***Premium grade PTFE for maximum chemical compatibility and wear resistance

2-in-1 Seal Cap for 1050/1100/1200

Our 2-in-1 Seal Cap replaces both the OEM outlet gold seal and outlet cap with a single component. Use it on your purge valve, OEM outlet check valve, or anywhere else on your 1050/1100/1200 system where gold seals and outlet caps are required.

Agilent/HP 1050, 1100, 1200		OEM #
27-31-02853	2-in-1 Seal Cap	5062-2485, 5001-3707

autosampler replacement parts

Agilent/HP 1100, 1200		OEM #
27-31-03212	Rotor Seal Assembly	0100-1853
27-31-03215	Needle	G1313-87201
27-31-03329	Needle Seat Assembly	G1313-87101

Agilent/HP 1050		OEM #
27-31-03603	Rotor Seal	0101-0626

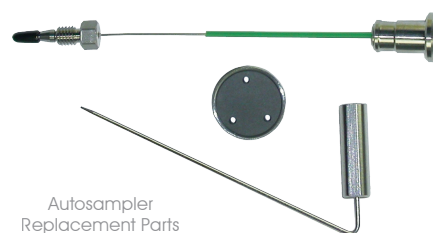
Agilent/HP 1090		OEM #
27-31-03649	Rotor Seal, 3 Grooves, Polyimide	7010-039
27-31-03650	Rotor Seal Rebuild Kit	7010-999
27-31-03670	Rotor Seal, 2 Grooves, Polyimide	0101-0623

lamps

Agilent/HP		OEM #
27-32-02817	Deuterium Lamp, 1050 VWD A-Series, 79853A	79853-60002
27-32-02827	Deuterium Lamp, 1100 (CE System DAD)	2140-0585
27-32-02844	Deuterium Lamp, 1050C, 1050DAD, 1090, 1040	79883-60002
27-32-02845	DoubleLife™ Deuterium Lamp, 1100, 1200 DAD	5181-1530, 2140-0813
27-32-02846	DoubleLife™ Deuterium Lamp, 1100, 1200 VWD	G1314-60100
27-32-02715	Deuterium Lamp, 1100 VWD G1314A	G1314-60100
27-32-04037	Xenon Lamp, 1100	2140-0600
27-32-04038	Doublelife Deuterium Lamp, 1050	79883-60002



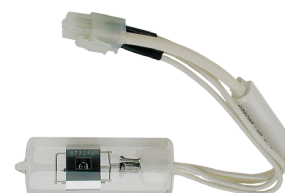
2-in-1 Seal Cap on Agilent Purge Valve Base



Autosampler Replacement Parts



Rotor Seal 27-31-03603

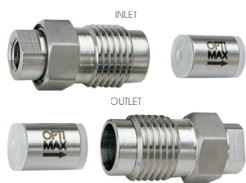


Agilent 1050 VWD A-Series 27-32-02817



Agilent 1100 DAD 27-32-02845

beckman / altex



OPTI-MAX for Beckman/Altex



22-36-00498



22-36-00492



22-36-00484



22-36-00486



22-36-00482



22-36-00494



22-34-00475



22-36-00500



22-34-00476



22-32-03659

opti-max check valves

110A, 110A/B, 112/112M, 114/114M, 116, 118, 125, 126, 127, 128 OEM #

22-66-00516	OPTI-MAX Inlet Housing & Cartridge	240720
22-66-00520	OPTI-MAX Outlet Housing & Cartridge	240721
10-66-02005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk	

OPTIONS: Stainless Steel/Ceramic OPTI-MAX Cartridges are listed above. For other options, please see page 45.

seals & pistons

100A, 110A/B OEM #

22-36-00498	OPTI-SEAL UHMW-PE* Piston Seal	887138, 2530-004
22-36-00499	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
22-36-00492	ITB PTFE** Piston Seal	887138, 2530-004
22-36-00493	ITB PTFE** Piston Seal, 10/Pk	
22-34-00475	Sapphire Piston, 110A/110B, 112/112M	243053, 110-07

105,110 Prep

OEM #

22-36-00484	OPTI-SEAL UHMW-PE* Piston Seal	887139
22-36-00485	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
22-36-00486	ITB PTFE** Piston Seal	887139
22-36-00487	ITB PTFE** Piston Seal, 10/Pk	

112/112M

OEM #

22-36-00482	OPTI-SEAL UHMW-PE* Piston Seal	236797
22-36-00483	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
22-34-00475	Sapphire Piston, 110A/110B, 112/112M	243053

114/114M, 116, 126

OEM #

22-36-00500	OPTI-SEAL UHMW-PE* Piston Seal	241037
22-36-00501	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
22-36-00496	ITB PTFE** Piston Seal	241037
22-36-00497	ITB PTFE** Piston Seal, 10/Pk	
22-34-00476	Sapphire Piston	240714

*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

lamps

Beckman/Altex

OEM #

22-32-03659	Deuterium Lamp, Beckman M-168	538711
22-32-02781	Deuterium Lamp, Beckman M-166, Altex 166	239372
22-32-01295	Deuterium Lamp for Beckman M-163	22 947029
22-32-04036	Deuterium Lamp for Beckman DU600, 620, 630, 640, 650, 6000, 7000, 7500	514366

opti-max[®] check valves

1330, 1350 

		OEM #
23-56-00546	OPTI-MAX Inlet Housing & Cartridge	8001306, 125-0306
23-56-00551	OPTI-MAX Outlet Housing & Cartridge	8001306, 125-0307
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

OPTIONS: Stainless Steel/Ceramic OPTI-MAX Cartridges are listed above.
For other options, please see page 45.

seals & pistons

1330, 1350, 1350T, 2700, 2800

		OEM #
23-36-00534	OPTI-SEAL UHMW-PE* Piston Seal	9100363, 125-0302
23-36-00535	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
23-36-00531	ITB PTFE** Piston Seal	9100363
23-36-00532	ITB PTFE** Piston Seal, 10/Pk	
23-34-00530	Piston, 1330, 1350, 1350T	8001311, 125-0304

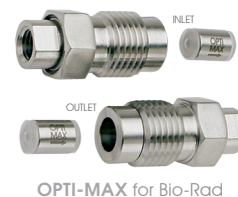
*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

lamps

Bio-Rad

		OEM #
23-32-02081	Deuterium Lamp, Model 1790 Biofocus 300 CE	930-6106
23-32-03119	Deuterium Lamp, REMEDI	



23-36-00534



23-36-00531



23-34-00530



Bio-Rad
23-32-02081

bischoff



OPTI-MAX
For Bischoff



24-36-01297



24-36-01303



24-36-00569



24-34-00559



24-36-00571



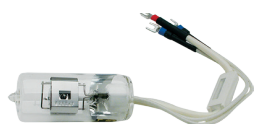
24-36-00573



24-36-00574



24-34-00562



Bischoff
24-32-02838

opti-max[®] check valves

**Bischoff 2200, 2250, Anspec SM909,
Alcott Micromeritics 760, 765 (Analytical Versions)** 

		OEM #
24-56-00576	OPTI-MAX Inlet Housing & Cartridge	2200-0220, 760/25602/00
24-56-00581	OPTI-MAX Outlet Housing & Cartridge	2200-0230, 760/25604/00
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

**Bischoff 2200, Anspec SM909,
Alcott Micromeritics 760 (Microbore Versions), 765** 

		OEM #
24-46-00585	OPTI-MAX Inlet Housing & Cartridge	2200-0120, 760/25602/01
24-46-00589	OPTI-MAX Outlet Housing & Cartridge	2200-0130, 760/25604/01
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	

OPTIONS: Stainless Steel/Ceramic OPTI-MAX Cartridges are listed above.
For other options, please see page 45.

seals & pistons

**Bischoff 2200, Anspec SM909,
Alcott Micromeritics 760, 765 (Analytical Versions)**

		OEM #
24-36-01297	OPTI-SEAL UHMW-PE* Piston Seal	2200-0212, 760/25601/01
24-36-01298	OPTI-SEAL UHMW-PE* Piston Seal 10/Pk	
24-36-01303	ITB PTFE** Piston Seal	2200-0212, 760/25601/00
24-36-01304	ITB PTFE** Piston Seal, 10/Pk	
24-36-00569	Piston Seal Support Ring	2200-0211, 760/25603/00
24-34-00559	Sapphire Piston	2200-0210, 760/25803/00

**Bischoff 2200, Anspec SM909,
Alcott Micromeritics 760 (Microbore Versions), 765**

		OEM #
24-36-00571	OPTI-SEAL UHMW-PE* Piston Seal	2200-0112, 760/25601/01
24-36-00572	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
24-36-00573	ITB PTFE** Piston Seal	2200-0112, 760/25601/01
24-36-00575	ITB PTFE** Piston Seal, 10/Pk	
24-36-00574	Piston Seal Support Ring	2200-0111, 760/25603/01
24-34-00562	Sapphire Piston	2200-0110, 760/25803/01

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

lamps

Bischoff

24-32-02838	DoubleLife™ Deuterium Lamp, Bischoff, Gynkotec SP6, LATEK VISI-6
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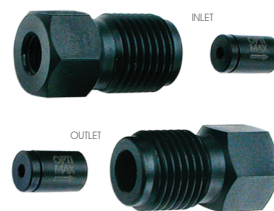
opti-max[®] check valves

GP-40*/IP-20*, DQP, GPM-1, DRP, GPM-2, DXP,
AGP (Analytical), 2000, 4000, GP-50/IP-25

		OEM #
25-58-00613	OPTI-MAX Inlet Housing & Cartridge	047660, 38273
25-58-00612	OPTI-MAX Outlet Housing & Cartridge	047661, 42761
10-58-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

OPTIONS: PEEK/ceramic OPTI-MAX cartridges are listed above.
For other options, please see page 45.

*The OPTI-MAX Check Valves above fit GP-40/IP-20 pumps. Users of microbore versions of these pumps should order OPTI-MAX microbore (1/16") cartridges. Please see page 45.



OPTI-MAX for
Dionex

pistons & seals

GP-40/IP-20 (Analytical), DQP, GPM-1, DRP, GPM-2, DXP,
AGP (Analytical), 2000, 4000

		OEM #
25-36-00597	OPTI-SEAL UHMW-PE* Piston Seal (Hastelloy C [®] Spring)	40859
25-36-00598	OPTI-SEAL UHMW-PE* Piston Seal (Hastelloy C [®] Spring), 10/Pk	
25-36-00599	UHMW-PE* Piston Seal, (Elastomer O-Ring)	35686
25-36-00600	UHMW-PE* Piston Seal, (Elastomer O-Ring), 10/Pk	
25-36-00601	Back-Up Seal, for all models except GP40/IP20	36901
25-36-00602	Back-Up Seal, 10/Pk	
25-34-00596	Sapphire Piston, for all models except GP40/IP20	36904

*UHMW PE - Ultra High Molecular Weight Polyethylene



25-36-00597



25-36-00599



25-36-00601



25-34-00596

lamps

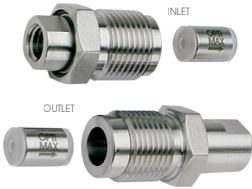
Dionex

		OEM #
25-32-02081	Deuterium Lamp, Dionex VDM-1, DSA-1	
25-32-02820	Deuterium Lamp, Dionex CES 1. VDM-2	40651



Dionex
25-32-02081

hitachi



OPTI-MAX for 655, L-6000, L-6200/L-6200A



OPTI-MAX for L-7100



28-36-00690



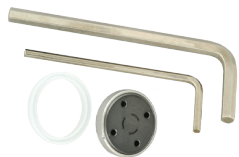
28-36-00688



28-36-00691



28-34-00685



28-31-03650



Hitachi
28-32-02829

opti-max® check valves

655, L-6000, L-6200/L-6200A

OEM

28-46-00703	OPTI-MAX Inlet Housing & Cartridge	ANO-0833, 885-1330
28-46-00712	OPTI-MAX Outlet Housing & Cartridge	ANO-0834, 885-1331
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	

L-7100 (LaChrom), L-2130

OEM

28-46-02092	OPTI-MAX Inlet Housing & Cartridge	ANO-0836, 810-1004, 809-1408
28-46-02094	OPTI-MAX Outlet Housing & Cartridge	ANO-0837, 810-1005, 809-1409
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.

L-2100, Smash Pump, L-2130

28-39-02092	OPTI-MAX Inlet Housing & Cartridge	
28-39-02094	OPTI-MAX Outlet Housing & Cartridge	
10-39-02004	OPTI-MAX Check Valve Cartridge Replacement, Microbore 1/32", 2/Pk	

seals & pistons

655, L-6000, L-6200/L-6200A, L-7100 (LaChrom), L-2100, Smash Pump

OEM

28-36-00690	OPTI-SEAL UHMW-PE* Piston Seal	655-1080
28-36-00692	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
28-36-00688	ITB PTFE** Piston Seal	655-1080
28-36-00689	ITB PTFE** Piston Seal, 10/Pk	
28-36-00691	OPTI-SEAL UHMW-PE* Piston Seal with Hastelloy C [®] Spring	
28-36-00693	OPTI-SEAL UHMW-PE* Piston Seal with Hastelloy C [®] Spring, 10/Pk	
28-34-00685	Sapphire Piston	810-1033

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

autosampler replacement parts

7200, 7250

OEM

28-31-03650	Polyimide Rotor Seal Rebuild Kit	ANO-0818
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lamps

Hitachi

OEM

28-32-02375	Deuterium Lamp, L-7000 Series, L-2400, L-3500, L-4000 Series	885-3570
28-32-02829	Deuterium Lamp, Hitachi 200, 300, 330, 340, 1500, 1800, 2000, 2001, 2800, 2810, 3200, L2500, -3000, -3100, U-Series, 655A, 150-20	ANO-0424, 890-2430
28-32-03928	Deuterium Lamp, Lachrom/Merck L-Series (excluding L-7000)	ANO-0424, 890-2430

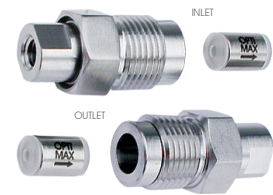
opti-max[®] check valves

BIP 1

42-56-01038	OPTI-MAX Inlet Housing & Cartridge
42-56-01043	OPTI-MAX Outlet Housing & Cartridge
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk

OEM

6260-H101A
6260-H102A



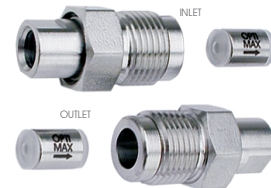
OPTI-MAX for BIP 1

880/980 Series 1580, 2080, 2086, 2089

42-56-01544	OPTI-MAX Inlet Housing & Cartridge
42-56-01546	OPTI-MAX Outlet Housing & Cartridge
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk

OEM

6560-H405A , 6778-H109A
6560-H404A, 6778-H110A



OPTI-MAX
For 880/980 Series

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above.
For other options, please see page 45.

seals & pistons

BIP-1, PU-2080, 2085, 2089, 1580-C02, 980, 880, 1586, 2086, 986

42-36-01357	OPTI-SEAL UHMW-PE* Piston Seal
42-36-01358	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk
42-36-01355	ITB PTFE** Piston Seal
42-36-01356	ITB PTFE** Piston Seal, 10/Pk
42-34-01354	Sapphire Piston

OEM

6560-H148, H149A
6560-H148-PE, H149A
2305-0005A, 2305-009A



42-36-01357



42-36-01355

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend



42-34-01354

lamps

Jasco

42-32-02841	DoubleLife™ Deuterium Lamp, 870, 875
42-32-02842	DoubleLife™ Deuterium Lamp, UV-1570, -1575, -2070, -2075, 975 B/C Series

OEM

5330-0097
5330-0091



42-32-02842

lkb / amersham / pharmacia



opti-max check valves

LKB 2150, 2248, 2500 

OEM #

32-46-00782	OPTI-MAX Inlet Housing & Cartridge	80-1035-19
32-46-00787	OPTI-MAX Outlet Housing & Cartridge	2150-300
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above.
For other options, please see page 45.



seals & pistons

LKB 2150, 2248, 2500

OEM #

32-36-01297	OPTI-SEAL UHMW-PE* Piston Seal with Back-Up Ring	80-1037-39
32-36-01298	OPTI-SEAL UHMW-PE* Piston Seal with Back-Up Ring, 10/Pk	
32-36-01303	ITB PTFE** Piston Seal, with Back-Up Ring	80-1037-39
32-36-01304	ITB PTFE** Piston Seal, with Back-Up Rings, 10/Pk	
32-34-00771	Sapphire Piston, 2150	80-1035-52

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

lamps

LKB/Amersham/Pharmacia

OEM #

32-32-02821	Deuterium Lamp, LKB Ultraspec I, II, III, Plus, 4050, 4051, 4054, 2141, 2151	
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perkin-elmer

opti-max check valves

Series 1, 2, 3, 3B, 10

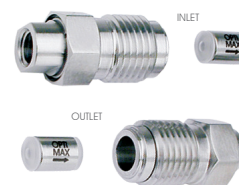
		OEM #
33-56-00840	OPTI-MAX Inlet Housing & Cartridge	0254-0546
33-56-00845	OPTI-MAX Outlet Housing & Cartridge	0254-0547
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



Series 1, 2, 3, 3B, 10

Model 250, Series 4, 200*, 400, 410, 620, Integral 4000*

		OEM #
33-56-00830	OPTI-MAX Inlet Housing & Cartridge	0254-0177
33-56-00835	OPTI-MAX Outlet Housing & Cartridge	0254-0197
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



Model 250, Series 4, 200, 400, 410, 620, Integral 4000

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.

*These pumps have an intermediate check valve which is identical to the inlet check valve; to order a replacement intermediate valve, use the OPTI-MAX inlet part number.

seals & pistons

Model 250, Series 200, 410, 620, Integral 4000 (Mfd. After 12/89)

		OEM #
33-34-00798	Piston (High Pressure)	N260-0124
33-34-00797	Piston (Low Pressure)	N260-0104



33-34-00798



33-34-00797

Model 250, Series 4, 200, 400, 410, 620, Integral 4000, Series 1, 2, 3, 3B, 10

		OEM #
33-36-01301	OPTI-SEAL UHMW-PE* Piston Seal (High Pressure)	0990-7324
33-36-01302	OPTI-SEAL UHMW-PE* Piston Seal (High Pressure), 10/Pk	
33-36-01299	ITB PTFE** Piston Seal (High Pressure)	0990-7328
33-36-01300	ITB PTFE** Piston Seal (High Pressure), 10/Pk	



33-36-01301



33-36-01299

Series 4, 400, 410, 620, Integral 4000

		OEM #
33-36-00804	OPTI-SEAL UHMW-PE Piston Seal (Low Pressure)	0990-7330
33-36-00805	OPTI-SEAL UHMW-PE Piston Seal (Low Pressure), 10/Pk	
33-36-00802	ITB PTFE Piston Seal (Low Pressure)	0990-7330
33-36-00803	ITB PTFE Piston Seal (Low Pressure), 10/Pk	



33-36-00804



33-36-00802

Series 100

		OEM #
33-36-00806	OPTI-SEAL UHMW-PE* Piston Seal	N260-0108
33-36-00807	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
33-36-00808	ITB PTFE** Piston Seal N260-0109	
33-36-00809	ITB PTFE** Piston Seal, 10/Pk	



33-36-00806



33-36-00808

*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

lamps

Perkin-Elmer

		OEM #
33-32-03117	Deuterium Lamp, 200 UV/Vis	N292-0149
33-32-03114	DoubleLife™ Deuterium Lamp, Series 200 DAD	N292-2046



33-32-03114

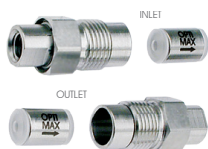
shimadzu



LC-10AT, LC-10ATVP



LC-10ADVP



LC-10AD, LC-600, LC-9A



LC-10AS, LC-6A



LC-8A



Shimadzu
34-32-02837

opti-max® check valves

LC-10AT, LC-10ATVP

34-46-01983	OPTI-MAX Inlet Housing & Cartridge
34-46-00893	OPTI-MAX Outlet Housing & Cartridge
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" ball, 2/Pk

Shimadzu

228-32166-91
228-39093-92, 228-32531-92
228-34976-91

LC-10ADVP, LC-20AD/LC-20AB (Prominence), LC-2010, GPC-20 & 50 (100 µL Head), ESA Models 582 & 584

34-46-02644	OPTI-MAX Inlet Housing & Cartridge
34-46-00893	OPTI-MAX Outlet Housing & Cartridge
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" ball, 2/Pk

Shimadzu

228-39093-92	70-4056
228-45704-91	
228-34976-91	70-4057
228-45705-91	
228-37147-93	

LC-20ABXR

34-86-02644	OPTI-MAX Inlet Housing & Cartridge
34-86-00893	OPTI-MAX Outlet Housing & Cartridge
10-86-02004	OPTI-MAX Replacement Cartridges 1/16" ball, 2/Pk

Shimadzu

228-48249-91
228-45705-91

LC-10AD, LC-600, LC-9A (also ESA Model 580)

34-46-00885	OPTI-MAX Inlet Housing & Cartridge
34-46-00893	OPTI-MAX Outlet Housing & Cartridge
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" ball, 2/Pk

Shimadzu

228-18522-91	70-0734
228-33492-91	
228-18522-92	70-0735
228-32531-92	

LC-10AS, LC-6A

34-56-00902	OPTI-MAX Inlet Housing & Cartridge
34-56-00907	OPTI-MAX Outlet Housing & Cartridge
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" ball, 2/Pk

Shimadzu

228-12353-91
228-09054-93

LC-8A

34-66-02112	OPTI-MAX Inlet Housing & Cartridge	228-20256-91
10-66-02005	OPTI-MAX Replacement Cartridges (for LC-8A Inlet), 3/16" ball, 2/Pk	
34-56-00907	OPTI-MAX Outlet Housing & Cartridge	228-09054-93
10-56-02004	OPTI-MAX Replacement Cartridges (for LC-8A Outlet), 1/8" ball, 2/Pk	

Shimadzu

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.

lamps

34-32-02837	DoubleLife™ Deuterium Lamp, SPD-10A, -10AV, -M10A, -10AS, -10AVP, -M10AVP, -20AV	228-34016-02
34-32-02838	DoubleLife™ Deuterium Lamp, SPD-2A, SPD-6A (V), LC-3A, -4A, 6A, SP4, 6500AA	
34-32-03102	DoubleLife™ Deuterium Lamp, LC 2010	228-37401-00

Shimadzu

seals & pistons

LC-10ADVP, 2010, LC-20AD (also ESA Models 582 & 584)		Shimadzu #	ESA #
34-36-00855	OPTI-SEAL UHMW-PE* Piston Seal	228-32628-00 228-18745-00	
34-36-00856	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk		
34-36-03472	ITB PTFE** Piston Seal	228-35146-00 228-18745-00	70-3602
34-36-03473	ITB PTFE** Piston Seals, 10/Pk		
34-34-02645	Sapphire Piston for LC-10ADVP, 2010, LC-20AD	228-35601-91 228-35601-92	70-4052 70-4052



34-36-00855



34-34-02645



34-36-00865



34-36-00863



34-34-00854



34-34-01345

LC-6A, LC-7A, LC-10AS, LC-10AT, LC-10ATVP, LC-20AT, SIL-10ADVP, GFP		Shimadzu #
34-36-00865	OPTI-SEAL UHMW-PE* Piston Seal	228-11999-00, 228-21975-00, 228-35145-00
34-36-00866	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
34-36-00863	ITB PTFE** Piston Seal	228-11999-00, 228-21975-00, 228-35145-00
34-36-00864	ITB PTFE** Piston Seal, 10/Pk	

Piston Wash Users: The above seals can also be used as Back Seals (OEM# 228-28499-00)

34-34-00854	Sapphire Piston for LC-6A	228-12904-93
34-34-01345	Sapphire Piston for LC-10AS	228-17019-93
34-34-01997	Sapphire Piston for LC-10AT (Universal Piston)	228-32654-91
34-34-02650	Sapphire Piston for LC-10ATVP	228-35009-92

LC-600, LC-9A, LC-10AD (and ESA 580)		Shimadzu #	ESA #
34-36-00855	OPTI-SEAL UHMW-PE* Piston Seal	228-18745-00	
34-36-00856	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk		
34-36-00857	UHMW-PE* Elastomer Energized Seal	228-18745-00 228-35146-00	
34-36-00858	UHMW-PE* Elastomer Energized Seal, 10/Pk		
34-34-00853	Sapphire Piston	228-18523-91	70-1166
34-36-03472	ITB PTFE** Piston Seal	228-35146-00	70-3602
34-36-03473	ITB PTFE** Piston Seals, 10/Pk		



34-34-02650



34-36-00857



34-34-00853



34-34-01997



34-04-03881

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

Universal Sapphire Piston for Shimadzu LC-10AT

Our Universal Piston System for Shimadzu lets you install LC-10AS plungers into a special reusable housing for use in the LC-10AT. Now, the same piston can be used in both the LC-10AS and 10AT, consolidating your inventory and reducing replacement cost.

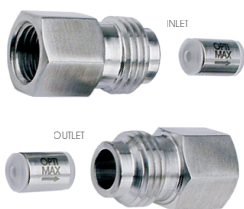
34-34-01997	First Time: LC-10AT Universal Piston Assembly
34-34-01345	Subsequent: LC-10AT piston replacement requires only one LC-10AS piston
34-34-01991	Sapphire Plunger Holder for Shimadzu LC-10AT (requires LC-10AS plunger as insert)

filtration

LC-6AD, LC-610, LC-6A, LC-6AEF, LC- 9A, LC-10AD, LC-10AS, LC-10AT

Shimadzu #		
34-04-03881	In-Line Filter Assembly	228-12642-93

ssi



OPTI-MAX for SSI

opti-max[®] check valves

200 Series, Model 300 (also BAS PM-48, ESA 5700 SDM, DuPont 8800)

		OEM #
36-56-00982	OPTI-MAX Inlet Housing & Cartridge	02-0162
36-56-00987	OPTI-MAX Outlet Housing & Cartridge	02-0163
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.



opti-max[®] cartridge upgrades

ULTRA CP



10-76-02004	OPTI-MAX Microbore 1/16" Diameter Ceramic Ball & Seat, SS Replacement Check Valve Cartridges w/ flangeless PEEK caps (For OEM Housing), 2/Pk Rated for use at 18,000 psi
-------------	---



36-36-01301



36-36-01299

seals

200 Series, Model 300

		OEM #
36-36-01301	OPTI-SEAL UHMW-PE* Piston Seal	90-1034
36-36-01302	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
36-36-01299	ITB PTFE** Piston Seal	90-1012
36-36-01300	ITB PTFE** Piston Seal, 10/Pk	

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

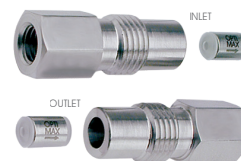
thermo: ldc / milton roy

opti-max[®] check valves

All Analytical (including Constametric, Minimetric, Minipump) OEM

31-56-00759	OPTI-MAX Inlet Housing & Cartridge	900947001
31-56-00764	OPTI-MAX Outlet Housing & Cartridge	900947002
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above.
For other options, please see page 45.



OPTI-MAX for LDC

check valve fittings

All Analytical (including Constametric, Minimetric, Minipump) OEM

31-24-00735	1/8" Nut & Ferrule, for Suction Tube	1960066976
31-24-00736	1/16" Nut & Ferrule, for Discharge Tube	1960066975



31-24-00735

seals & pistons

All Analytical (including Constametric, Minimetric, Minipump) OEM

31-36-00806	OPTI-SEAL UHMW-PE* Piston Seal	206234
31-36-00807	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
31-36-00754	OPTI-SEAL Replacement Kit	801598
31-36-00808	ITB PTFE** Piston Seal, Black	206129001
31-36-00809	ITB PTFE** Piston Seal, Black, 10/Pk	
31-36-00750	Seal Replacement Kit, ITB	801598
31-36-00745	UHMW-PE* Piston Seal, Gold	206234
31-36-00746	UHMW-PE* Piston Seal, Gold, 10/Pk	
31-36-00747	Seal Replacement Kit, Gold	801892001
31-34-00738	Sapphire Piston	801306
31-34-00739	Crosshead Spring, Constametric II, Mini-pump	9160282000
31-34-00740	Crosshead Spring, Minimetric	204040



31-24-00736



31-36-00806



31-36-00808



31-36-00745

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

lamps

LDC/Milton Roy OEM

31-32-01295	Deuterium Lamp, 3000 and 4000 Series, Spectromonitor I-II-III-D	108035
31-32-02824	Deuterium Lamp, 5000 (PDA)	

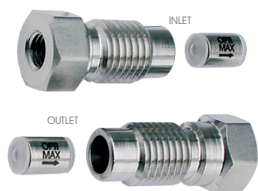


31-34-00738



31-32-01295

thermo: spectra-physics



OPTI-MAX for Spectra-Physics

opti-max check valves

8700, 8800, 8810, IsoChrom, P-Series

		OEM #
35-56-00956	OPTI-MAX Inlet Housing & Cartridge	A3495-010
35-56-00961	OPTI-MAX Outlet Housing & Cartridge	A3490-010
35-56-00952	OPTI-MAX Transducer Housing & Cartridge	A3990-010
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.



35-36-00930



35-36-00938



35-36-00916



35-36-00918



35-36-00920



35-34-00915



35-36-00934



35-36-00936

seals & pistons

8800, 8810, IsoChrom, P-Series

		OEM #
35-36-00930	OPTI-SEAL UHMW-PE* Piston Seal	A2962-010
35-36-00931	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
35-36-00938	ITB PTFE** Piston Seal	A2962-010
35-36-00939	ITB PTFE** Piston Seal, 10/Pk	
35-36-00916	Back-Up Seal, PCTFE	A4848-010
35-36-00917	Back-Up Seal, PCTFE, 10/Pk	
35-36-00918	OPTI-SEAL UHMW-PE* Flush Seal	A2963-010
35-36-00919	OPTI-SEAL UHMW-PE* Flush Seal, 10/Pk	
35-36-00920	ITB PTFE** Flush Seal	A2963-010
35-36-00921	ITB PTFE** Flush Seal, 10/Pk	
35-34-00915	Sapphire Piston	A3102-010

8700, 8700XR, 8750

		OEM #
35-36-00934	OPTI-SEAL UHMW-PE* Piston Seal	A1703-020
35-36-00935	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
35-36-00936	ITB PTFE** Piston Seal	A1703-020
35-36-00937	ITB PTFE** Piston Seal, 10/Pk	

*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

lamps

Thermo: Spectra-Physics

		OEM #
35-32-01333	Deuterium Lamp, Spectra-Physics Focus, 100, 200, UV-100, -150, -200, -100, 2000, 3000, CE Series	9551-0023

varian, gilson / rainin

opti-max[®] check valves

5, 10 & 25 mL S/SC Heads (Gilson, Rainin, ProStar 210/215, HP, HPX, HPXL, SD 200/300)

		OEM #
26-56-00638	OPTI-MAX Inlet Housing & Cartridge	R007101616, R007101678
26-56-00647	OPTI-MAX Outlet Housing & Cartridge	R007101617, R007101679
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



OPTI-MAX for Gilson/Rainin

2010

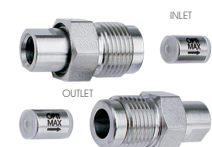
		OEM #
38-56-01038	OPTI-MAX Inlet Housing & Cartridge	00-997261-09
38-56-01043	OPTI-MAX Outlet Housing & Cartridge	00-997261-10
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



2010 for Varian

2510

		OEM #
38-56-01544	OPTI-MAX Inlet Housing & Cartridge	00-997554-19
38-56-01546	OPTI-MAX Outlet Housing & Cartridge	00-997554-18
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



2510 for Varian

9000 Star, 9010, 9012, PROSTAR 220, 230, 240

		OEM #
38-56-01067	OPTI-MAX Outlet Housing & Cartridge	03-919465-90
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	



38-56-01067 OPTI-MAX for Varian

OPTIONS: Stainless steel/ceramic OPTI-MAX cartridges are listed above. For other options, please see page 45.

seals & pistons

10mL S/SC Heads (Gilson, Rainin, HP, HPX, HPXL, SD 200/300)

		OEM #
26-36-00632	OPTI-SEAL UHMW PE* Piston Seal	5463125895, R007101637
26-36-00633	OPTI-SEAL UHMW PE* Piston Seal, 10/Pk	
26-36-00630	ITB PTFE** Piston Seal	5463125095, R007101636
26-36-00631	ITB PTFE** Piston Seal, 10/Pk	
26-34-00624	Piston, 10 mL S/SC Head	3650009, R007101658



26-36-00632



26-36-00630



26-34-00624

5mL S/SC Heads (Gilson, Rainin, HP, HPX, HPXL, SD 200/300)

		OEM #
26-36-00634	OPTI-SEAL UHMW-PE* Piston Seal	5463088863, R007101634
26-36-00635	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
26-36-00636	ITB PTFE** Piston Seal	5463088063, R007101633
26-36-00637	ITB PTFE** Piston Seal, 10/Pk	
26-34-00625	Piston, 5 mL SC Head	3650008, R007101657



26-36-00634



26-36-00636



26-34-00625

*UHMW PE - Ultra High Molecular Weight Polyethylene
**ITB PTFE - Improved PTFE Blend

varian, gilson / rainin (continued)



38-36-01000



38-36-01002



38-34-00999



38-36-01555



38-36-01553



38-34-01342



26-32-01295



38-32-01637

seals & pistons cont.

ProStar 210/215 (10 mL Heads)

		OEM #
38-36-00632	OPTI-SEAL UHMW-PE* Piston Seal	R007101637
38-36-00633	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
38-36-00630	ITB PTFE** Piston Seal	R007101636
38-36-00631	ITB PTFE** Piston Seal, 10/Pack	
38-34-00624	Sapphire Piston, 10 mL Head	R007101658

ProStar 210/215 (5 mL Heads)

		OEM #
38-36-00634	OPTI-SEAL UHMW-PE* Piston Seal	R007101634
38-36-00635	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
38-36-00636	ITB PTFE** Piston Seal	R007101633
38-36-00637	ITB PTFE** Piston Seal, 10/Pk	
38-34-00625	Sapphire Piston, 5 mL Head	R007101657

2010, 2510

		OEM #
38-36-01000	OPTI-SEAL UHMW-PE* Piston Seal	00-997261-37
38-36-01001	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
38-36-01002	ITB PTFE** Piston Seal	00-997261-37
38-36-01003	ITB PTFE** Piston Seal, 10/Pk	
38-34-00999	Sapphire Piston	00-997261-08

9000 Star, 9010, 9012, 9020, 220, 230, 240

		OEM #
38-36-01555	OPTI-SEAL UHMW-PE* Piston Seal	03-919397-00
38-36-01556	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
38-36-01553	ITB PTFE** Piston Seal	03-919397-00
38-36-01554	ITB PTFE** Piston Seal, 10/Pk	
38-34-01342	Sapphire Piston	03-919180-00, 03-919102-90

*UHMW PE - Ultra High Molecular Weight Polyethylene

**ITB PTFE - Improved PTFE Blend

lamps

Gilson / Rainin Models

		OEM #
26-32-01295	Deuterium Lamp, Gilson/Rainin 112	
26-32-03671	Deuterium Lamp, Gilson/Rainin 115, 116, 117, 118, 119, 151, 152, 155, 156	100326
26-32-03069	Deuterium Lamp, Gilson/Rainin 170 DAD	2140-0590

Varian Models

		OEM #
38-32-01637	Deuterium Lamp, Varian 2050, 2550, 5500	
38-32-03673	Deuterium Lamp, Varian Prostar 330 DAD	0393570502
38-32-02831	DoubleLife™ Deuterium Lamp, Vista 5000-5500, UV-50, -100, -200, -9050	0391615691
38-32-02081	Deuterium Lamp, Varian Prostar 340, 345, U-VC, UV-DII, UV-M, UV-DII, UV	R000088515
38-32-03654	Deuterium Lamp, Varian Prostar 325, 335	
38-32-04022	Xenon Lamp, Varian Prostar 363	392613102

opti-max[®] check valves

2690, 2695, 2790, 2795, Alliance* 

		OEM #
39-46-01949	OPTI-MAX Inlet Housing & Cartridge	WAT027112, 700002332
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	WAT270941, 700002761

*2690/Alliance Systems have inlet check valves only - outlets are not required.

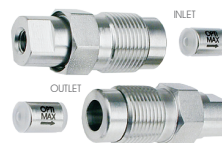


2690/Alliance

100 µL Head Systems

(M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA, 1515, 1525)

		OEM #
39-56-01251	OPTI-MAX Inlet Housing & Cartridge	WAT033679, 700000253
39-56-01256	OPTI-MAX Outlet Housing & Cartridge	700000253
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	700000254, 700002399



100 µL Head Systems

225 µL Head (#3) Systems

(510, 515, 590, 600/600E, 610, 650, 6K/6KA)

		OEM #
39-66-01262	OPTI-MAX Inlet Housing & Cartridge	WAT033679, WAT060307
10-66-02005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk	
39-56-01256	OPTI-MAX Outlet Housing & Cartridge	WAT025216
10-56-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk	700000254, 700002399



225 µL Head Systems

400 µL (#4), 500 µL (#5), & 900 µL (#6) Heads

(Delta Prep 3000, 600/600E, 650)

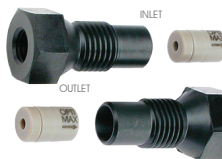
		OEM #
39-66-01267	OPTI-MAX Outlet Housing & Cartridge	WAT033326 WAT033325
10-66-02005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk	



400 µL, 500 µL & 900 µL
Heads/Systems

625/626

		OEM #
39-48-01907	OPTI-MAX Inlet Housing & Cartridge, PEEK	WAT030541
39-48-01909	OPTI-MAX Outlet Housing & Cartridge, PEEK	WAT030543
10-48-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	WAT024120



625/626

616, 1525 µ (Micro)

		OEM #
39-46-01949	OPTI-MAX Inlet Housing & Cartridge	WAT055845
39-46-01950	OPTI-MAX Outlet Housing & Cartridge	WAT055845
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	WAT270941, 700002761



616

OPTIONS: Stainless Steel/Ceramic OPTI-MAX cartridges are listed above (except for the 625/626, which requires PEEK housings and cartridges). For other options, please see page 45.

waters (continued)



seals & pistons

Alliance/2690, 2695, 2790, 2795

		OEM #
39-36-02596	OPTI-SEAL UHMW-PE* Piston Seal	WAT270938
39-36-02603	OPTI-SEAL UHMW-PE* Piston Seal, 2/Pk	WAT270938
39-36-02597	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
39-36-02855	Face Seals Replacement Kit, 4/Pk	WAT270939
39-36-02856	Seal Wash Face Seal	WAT271017
39-36-02858	Seal Wash Tube Seals Replacement Kit, 4/Pk	WAT270940
39-36-02860	Seal Wash, Piston Seal, Replacement Kit, 2/Pk	WAT271018
39-34-02180	Sapphire Piston	WAT270959

100 µL Head Systems

(M45/45G, M501, 510, 590, 600/600E, 610, 6K/6KA, 1515, 1525, 515)

		OEM #
39-36-01305	OPTI-SEAL UHMW-PE* Piston Seal	WAT022934/ WAT022946
39-36-01306	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
39-36-01206	ITB PTFE** Piston Seal, Black	WAT026613
39-36-01207	ITB PTFE** Piston Seal, Black, 10/Pk	
39-36-01208	ITB PTFE** Piston Seal, Red	WAT025638
39-36-01210	ITB PTFE** Piston Seal, Red, 10/Pk	
39-36-01211	ITB PTFE** Piston Seal, Tan	WAT025384
39-36-01213	ITB PTFE** Piston Seal, Tan, 10/Pk	
39-34-01188	Piston, 510, 590, 600/600E, 610, 6K/6KA	WAT025656
39-34-01191	Piston, M45/45G, M501	WAT026524
39-34-01195	Piston Indicator Rod & Spring Kit, 2/Pk	WAT069583
39-34-03522	Sapphire Piston, 1515, 1525, 515	WAS207069

225 µL Head (#3) Extended Flow Systems

(510, 590, 600/600E, 610, 650, 6K/6KA)

		OEM #
39-36-01216	OPTI-SEAL UHMW-PE* Piston Seal	WAT026644
39-36-01217	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
39-36-01214	ITB PTFE** Piston Seal	WAT026644
39-36-01215	ITB PTFE** Piston Seal, 10/Pk	
39-34-01193	Piston	WAT060304

616, 625/626

		OEM #
39-36-02124	OPTI-SEAL UHMW-PE* Piston Seal	
39-36-02228	OPTI-SEAL UHMW-PE* Piston Seal, 10/Pk	
39-36-02127	ITB PTFE** Piston Seal	WAT031790
39-36-02229	ITB PTFE** Piston Seal, 10/Pk	
39-34-01930	Piston and Spring	WAT031788

*UHMW PE - Ultra High Molecular Weight Polyethylene
 **ITB PTFE - Improved PTFE Blend

lamps

Waters

		OEM #
39-32-01175	Mercury Lamp, Waters 440, 441	WAT097323
39-32-01178	Quartz Lamp, Waters 150C	WAT075631
39-32-01179	Deuterium Lamp, Waters 484	WAT080357
39-32-01294	Deuterium Lamp, Waters 450	WAT098946
39-32-01295	Deuterium Lamp, Waters 480, 481, 481AZ	WAT099499
39-32-02823	Deuterium Lamp, Waters 486	WAT080678
39-32-02825	Deuterium Lamp, Waters 2487, 2488, Alliance	WAS081142
39-32-02835	DoubleLife™ Deuterium Lamp, Waters 996, 2996, PDA	WAT052586
39-32-02688	Xenon Lamp, Waters 490E	WAT046660
39-32-02185	Deuterium Lamp, Waters 996, 2996, PDA	WAT057760



Waters
39-32-02825



Waters
39-32-02835



39-04-03524
Filter Insert Assembly

filtration

2690/2695, 2790/2795, 600

		OEM #
39-04-03524	2 μ m Filter Insert Assembly - In-Line	WAT088084
10-04-03151	Solvent Filter, 1/8", 10 μ L, 4/Pk	WAT025531

For additional filtration configurations, see page 31.



10-04-03151
Solvent Filter

inlet manifold parts & priming accessories

Part No	Description	OEM #
39-31-01293	Threaded Seal Insert, M45/M45G, M501, 510, 590, 600/600E, 610, 6KA	WAT060015 WAT005098
39-31-01171	Optimize Safety Syringe (for pump priming)	WAT027629
39-31-01147	Needle with Nut & Ferrule	WAT025559
39-31-01151	Priming Syringe Kit Includes: Priming Syringe Needle Nut & Ferrule	



Ball Plug



Threaded Seal Insert



Ruby Ball



Actuator Seat



Needle with /Nut & Ferrule



Priming Syringe

waters (continued)

Rebuild your Waters WISP™ Autosampler with these rebuild kits and individual components.



WISP Syringe

waters WISP™ autosampler

Rebuild Kits for WISP Autosamplers

39-30-01132	715/717 Seal Pack Assembly Rebuild Kit
Includes:	
39-30-01106	Needle Wash Frit (4)
39-30-01114	PTFE Washer (1)
39-30-01115	Upper Wash Spacer (2)
39-30-01119	Gasket (4)
39-30-01125	WISP™ Solvent Seal, long (2)

Replacement Components for WISP Autosamplers

		OEM #
39-30-01093	250 µL WISP Syringe	WAT073109
39-30-01106	Injector Wash Frit	WAT005106
39-30-01114	PTFE Washer	WAT005135
39-30-01115	Upper Needle Wash Spacer	WAT005133
39-30-01125	WISP Solvent Seal, Long	