

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

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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-10ADVP/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



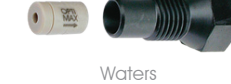
Perkin Elmer
33-56-02157



Shimadzu
34-46-02158



Waters
39-46-02187



Waters
39-48-02170

SEALS

Piston seals from Optimize Technologies are designed to offer reliable performance in a variety of operating conditions. We offer OPTI-SEAL UHMW-polyethylene-based seals for applications where mostly aqueous or buffered-aqueous mobile phases are used, and ITB graphitized PTFE seals when mobile phases are mostly organic or where chemical compatibility is of primary concern.

PISTONS

Optimize sapphire pistons (also referred to as plungers) are made from the same high-quality material OEMs use for their own components. Our sapphire pistons offer optimal concentricity and resistance to wear. The angle at which sapphire rods are cut in relation to the grain of the crystal lattice has a large effect on the durability and strength of the finished product. This cut angle is tightly controlled during the machining process, resulting in a piston with maximal resistance to breakage and superior wear characteristics.

value

Optimize pistons offer OEM-equivalent performance at a much better price.

convenience

Consolidate orders with our wide selection of pistons for most HPLC systems.

ITB graphitized-PTFE for high organic mobile phases.

OPTI-SEAL UHMW-polyethylene for aqueous/buffered mobile phases.



performance

Selecting the best seal material for the application ensures optimal seal performance and lifetime.

reliability

Available Seal Forming/Installation Tool Kits aid in correct seal installation, maximizing seal lifetime.

convenience

A wider selection of seals with more system coverage than any other manufacturer enables you to consolidate orders.

OEM quality and performance at a better price.

Optimal concentricity for precise seal-piston alignment.



opti-max[®]

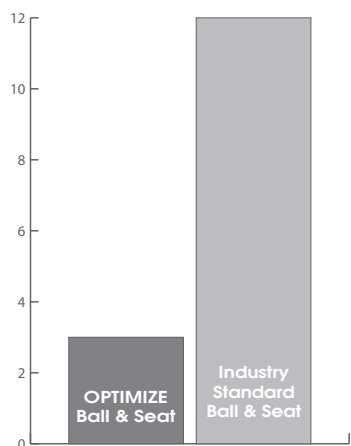
check valves



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

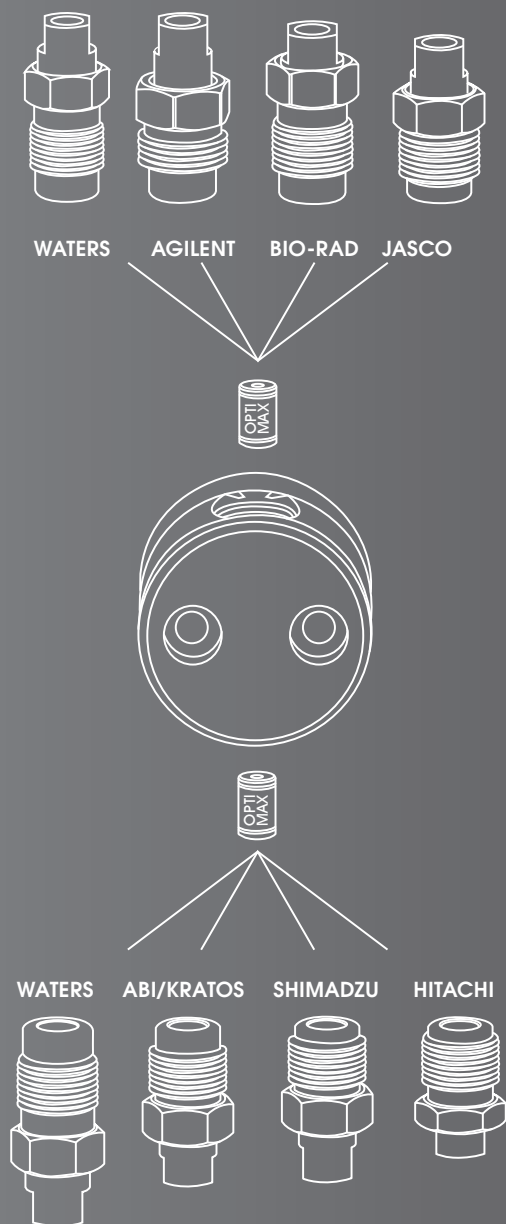
Tighter specifications make a better valve. A check valve can only function effectively if it activates and seals properly in response to the piston cycle. The seating process is fairly simple - the ball lands on the seat and creates a seal - but there are many factors that contribute to optimal seating. 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 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.



shimadzu



LC-10AD, 10ADVP, 600, 9A,
2010, 20-AT, 20-AD, 20-AB

optimax check valves

Optimize P/N	Optimize Description	shimadzu P/N
34-46-00885	OPTI-MAX Inlet Cartridge Check Valve LC-10AD, LC-600/LC-9A	228-33492-91 228-18522-91
34-46-02644	OPTI-MAX Inlet Cartridge Check Valve LC-10ADVP, LC-20AD, LC-20AB, LC-2010, LC-20AT	228-45704-91 228-39093-92
34-46-00893	OPTI-MAX Outlet Cartridge Check Valve LC-10ADVP, LC-20AD, LC-20AB, LC-2010, LC-20AT	228-34976-91 228-18522-92 228-45705-91 228-39093-92 228-32531-92 228-37147-93
10-46-02004	OPTI-MAX Replacement Cartridges, 1/16" ball, 2/pk	n/a

seals

Optimize P/N	Optimize Description	shimadzu P/N
34-36-00855	OPTI-SEAL UHMW-PE Plunger Seal LC-10AD, LC-600/LC-9A,	228-35146-00
34-36-00856	OPTI-SEAL UHMW-PE Plunger Seal LC-10AD, LC-600/LC-9A 10/Pk	n/a
34-36-00857	UHMW-PE/Elastomer Energized Plunger Seal LC-10AD, LC-600/LC-9A	28-35146-00
34-36-00858	UHMW-PE/Elastomer Energized Plunger Seal LC-10AD, LC-600/LC-9A 10/Pk	n/a

pistons

Optimize P/N	Optimize Description	shimadzu P/N
34-34-00853	Sapphire Plunger LC-10AD, LC-600/LC-9A	228-18523-91
34-34-02645	Sapphire Plunger Assembly, LC-10ADVP	228-35601-91

lamps

Optimize P/N	Optimize Description	shimadzu P/N
34-32-03102	DX2 DoubleLife™ D2 Lamp for LC 2010	228-37401-00