

# opti-max<sup>®</sup>

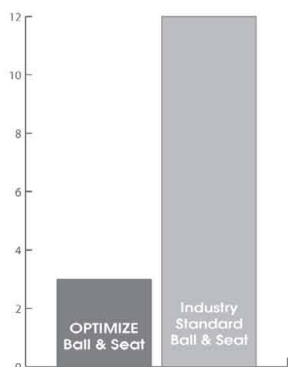
## check valves



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.

[www.optimizeotech.com](http://www.optimizeotech.com)



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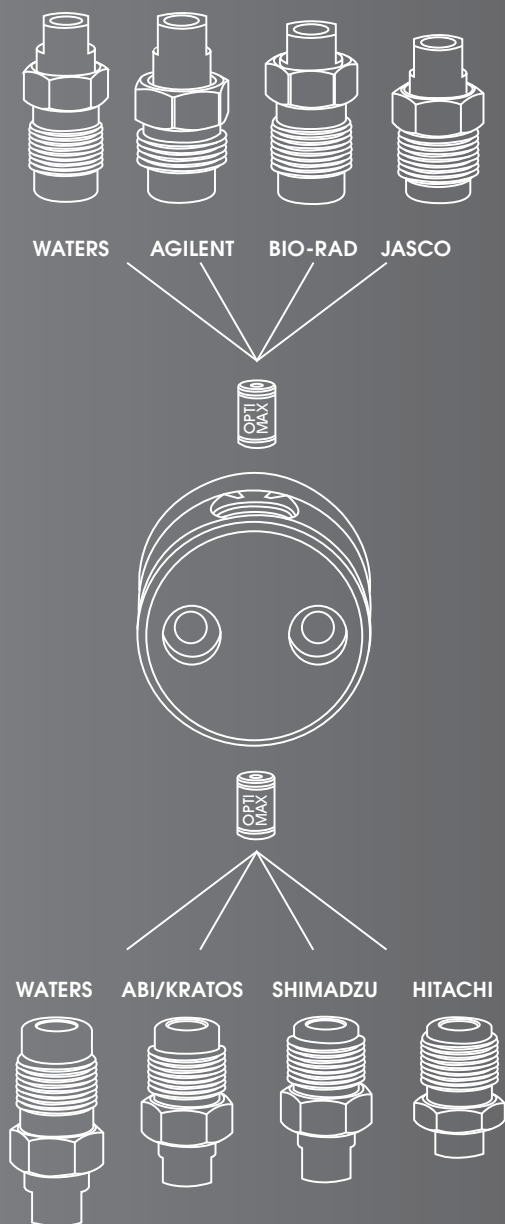
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# opti-max<sup>®</sup> cartridges

## 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<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> FREE-TURN<sup>®</sup>** housings can be removed with the tubing still attached, accelerating check valve maintenance while reducing fitting wear.

## FREE-TURN<sup>®</sup> 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<sup>®</sup> materials

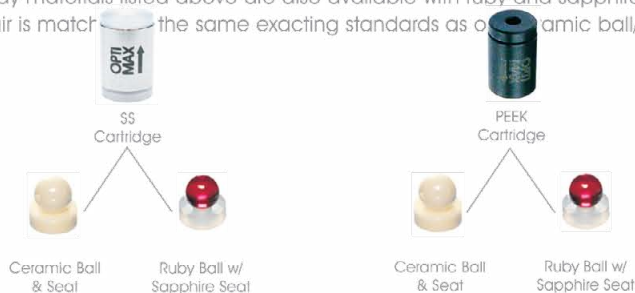
Opti-Max cartridges are available in several different sizes and combinations of body and ball/seat materials, all manufactured and leak tested to meet the same high standard of performance.

## 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	<b>Recommended:</b> 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	<b>Recommended:</b> 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	<b>Recommended:</b> 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.

replacement parts



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