

# BULKY DOCUMENTS

(exceeds 300 pages)

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Title: Table of contents

Optimize technologies, Inc. (opponent)  
V

Wilcom GmbH, (Applicant)

Part 1 of 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Optimize Technologies, Inc.,  
Opposer,  
v.  
Wicom GmbH,  
Applicant.

No. 91156666  
OPPOSER'S BRIEF IN SUPPORT  
OF OPPOSITION

78/095516



12-06-2005

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## I. INTRODUCTION

Beginning in September, 1985, Optimize Technologies, Inc. ("Optimize") adopted for use and registration the house mark OPTI, and subsequently added a family of OPTI-prefix marks, all for high pressure liquid chromatography ("HPLC") equipment and component parts. Optimize's German distributor, Wicom GmbH ("Wicom"), later filed applications to register the marks OPTIFLOW and OPTI-LIGHT for related goods. Will the registration of Wicom's marks create a likelihood of confusion with Optimize's prior registered marks?

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## II. DESCRIPTION OF RECORD

The evidence of record consists of Opposer's Declaration of Everett E. Fruehling in Support of Opposer's Brief in Support of Opposition and the attached exhibits:

1. Exhibit 1, Opposer's Notice of Reliance Pursuant to Rule 2.122(d)(2) and Rule 2.122(e);

2. Exhibit 2, Deposition Upon Oral Examination of Doug Ford, conducted August 17, 2004, in Seattle, Washington;

3. Exhibit 3, the relevant pages from Applicant's Responses to Opposer's First Set of Interrogatories;

4. Exhibit 4, the relevant pages from Applicant's Responses to Opposer's Second Set of Interrogatories;

5. Exhibit 5, the relevant pages from Applicant's Responses to Opposer's First Set of Requests for Admissions; and

6. Exhibit 6, documents numbered OPTI 00001 through OPTI 00010.

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## III. PROCEDURAL FACTS

1. On January 7, 2003, Wicom's U.S. Application Serial No. 78/095,516, for the mark OPTIFLOW, was published for opposition.

2. On May 1, 2003, Optimize filed its Notice of Opposition to oppose U.S. Trademark Application Serial No. 78/095,516. The opposition was assigned No. 91156666.



1 date of first use and use in commerce is September 15, 1985. The registration is  
2 incontestable. Fruehling Declaration, Exhibit 1, at Exhibit A.

3 4. On December 21, 1995, Optimize filed U.S. Trademark Application Serial  
4 No. 75/035,264 for the OPTI-GUARD mark, which registered on September 30, 1997, as  
5 U.S. Trademark Registration No. 2,100,804, for "precolumn filters and guard columns for  
6 High-Performance Liquid Chromatography (HPLC)," in International Class 9. The date of  
7 first use and use in commerce is January, 1994. The registration is incontestable. Fruehling  
8 Declaration, Exhibit 1, at Exhibit B.

9 5. On December 21, 1995, Optimize filed U.S. Trademark Application Serial  
10 No. 75/035,134 for the OPTI-MAX mark, which registered on December 17, 1996, as  
11 U.S. Trademark Registration No. 2,023,739, for "check valves for High-Performance Liquid  
12 Chromatography (HPLC) pumps in International Class 9. The date of first use and use in  
13 commerce is 1990. The registration is incontestable. Fruehling Declaration, Exhibit 1, at  
14 Exhibit C.

15 6. On December 21, 1995, Optimize filed U.S. Trademark Application Serial  
16 No. 75/035,135 for the OPTI-SEAL mark, which registered on December 17, 1996, as  
17 U.S. Registration No. 2,023,740, for "piston and plunger seals for High-Performance Liquid  
18 Chromatography (HPLC) pumps, in International Class 9. The date of first use and use in  
19 commerce is 1998. The registration is incontestable. Fruehling Declaration, Exhibit 1, at  
20 Exhibit D.

21 7. On December 21, 1995, Optimize filed U.S. Trademark Application Serial  
22 No. 75/035,268 for the OPTIMIZE TECHNOLOGIES mark, which registered on October 21,  
23 1997, as U.S. Trademark Registration No. 2,107,751, for "liquid transfer components of  
24 chemical analytic equipment, namely, High-Performance Liquid Chromatography (HPLC)—  
25 tubing; fittings; packed columns; guard columns; precolumn filters; seals; pump components,  
26 namely, pump heads, pistons, plungers and seals; check valves; priming valves; priming  
27 adaptors; detector source lamps; filters, manifold ball seals; injector components, namely,

1 syringes, seals and needles; pressure regulators; sample processor components, namely,  
2 syringes, needles, seals, washers and frits, all for HPLC instruments; HPLC maintenance kits  
3 comprising inlet cartridge check valves, outlet cartridge check valves, replacement cartridges,  
4 pistons, pump seals, filters and fittings; and HPLC fitting kits comprising tubing, nuts and  
5 ferrules," in International Class 9. The dates of first use and use in commerce are October 15,  
6 1985, and November 1, 1985, respectively. The registration is incontestable. Fruehling  
7 Declaration, Exhibit 1, at Exhibit E.

8 8. On or about 1995 or 1996, Optimize began selling a flowmeter with the  
9 OPTI-FLOW mark used to calibrate HPLC instruments and could be used with any  
10 instrument that has a flow rate where the liquid flows through a small capillary tubing. The  
11 OPTI-FLOW mark and flowmeter appeared in Optimizes 19978-1998 product catalog. It was  
12 marketed throughout the world and was available for sale through any of Optimize's dealers,  
13 which included Wicom in Germany. Optimize continues to provide support for this device.  
14 Fruehling Declaration, Exhibit 1 at Exhibit F; Exhibit 2, at pp. 19-20, and Exhibit 1, attached  
15 thereto.

16 9. In late 2001, Optimize learned that Wicom was using the OPTIFLOW mark  
17 for a line of filters. Optimize discussed this with Wicom at a trade show. In an e-mail dated  
18 October 12, 2001, Optimize stated that it believed that customer confusion would arise and  
19 asked that Wicom stop using the OPTIFLOW mark. Fruehling Declaration, Exhibit 2, at  
20 pp. 18-19; Exhibit 6 at OPTI 00001-00010.

21 10. On November 28, 2001, Wicom filed, on an intent to use basis, U.S.  
22 Trademark Application Serial No. 78/095,516 for the OPTIFLOW mark, for "laboratory  
23 filters for purification and cleaning of fluid laboratory samples, sold separately," in  
24 International Class 9. No amendment to allege use was filed.

25 11. On October 18, 2002, Wicom filed, on an intent to use basis, U.S. Trademark  
26 Application Serial No. 78/176,019 for the OPTI-LIGHT mark, for "chromatography  
27 chemicals," in International Class 1, and "analytical devices and systems for use in the

1 chemical and physical analysis of solid, liquid and gaseous compounds and mixtures, and  
2 structural and replacement parts therefore," in International Class 9. No amendment to allege  
3 use was filed.

4 12. On April 9, 2003, Optimize filed U.S. Trademark Application Serial  
5 No. 78/235,551 for the OPTI-SOLV mark, which registered on November 30, 2004, as  
6 U.S. Trademark Registration No. 2,906,257, for "scientific instruments, namely, filters for  
7 High-Performance Liquid Chromatography (HPLC), Mass Spectrometry, sample preparation,  
8 and other analytical techniques involving filtration of solvents, mobile phases, and samples, in  
9 International Class 9." The dates of first use and use in commerce are February, 1993, and  
10 January 30, 1996, respectively.<sup>1</sup>

11 13. On April 9, 2003, Optimize filed U.S. Trademark Application Serial  
12 No. 78/235,546 for the OPTI-PAK mark, which registered on November 30, 2004, for  
13 "scientific instruments, namely, capillary trap cartridges for High-Performance Liquid  
14 Chromatography (HPLC) and other analytical techniques involving analyte trapping and  
15 sample purification, in International Class 9." The date of first use and use in commerce is  
16 March, 2002.<sup>2</sup>

17 14. Chromatography and High-Pressure Liquid Chromatography (HPLC) is the  
18 separation of solution into its separate molecular components. It is used in pharmaceutical,  
19 petrochemical, environmental, biotech, crime investigation, hospitals, universities, and other  
20 research and laboratory facilities. Fruehling Declaration, Exhibit 2, at pp. 5, 10, and 16.

21 15. Optimize's products including its OPTI-GUARD precolumn filters, are related  
22 to, and can be used specifically for, the same purpose for which Wicom intends to use the  
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26 <sup>1</sup> At the time this opposition was instituted, this application was pending. Subsequently, it registered on  
November 30, 2004.

27 <sup>2</sup> At the time this opposition was instituted, this application was pending. Subsequently, it registered on  
November 30, 2004.

1 OPTIFLOW mark, namely laboratory filters for purification and cleaning of fluid laboratory  
2 samples. Fruehling Declaration, Exhibit 2, at pp. 13-16.

3 16. All of Optimize's HPLC related components, analytical devices, systems and  
4 replacement parts fall within or are the same as the goods for which Wicom's OPTI-LIGHT,  
5 namely chromatography chemicals, and analytical devices for use in chemical and physical  
6 analysis of solid, liquid, and gaseous compounds, and mixtures and structural and replacement  
7 parts therefore. Fruehling Declaration, Exhibit 2, at p. 14.

8 17. Optimize markets a full line of HPLC components under the OPTI and OPTI  
9 prefix marks, with a total of almost 500 different products. Optimize advertises and sells its  
10 products throughout the world through dealers and in the United States. Optimize promotes  
11 its goods at trade shows and advertises in trade journals. The primary trade journal is LCGC,  
12 which stands for Liquid Chromatography/Gas Chromatography. They also advertise in the  
13 European version of LCGC. Optimize also promotes and advertises its products through its  
14 distributors and representatives. Fruehling Declaration, Exhibit 2, at pp. 6-10.

15 18. Optimize's devices and products have been in use in a variety of other  
16 industries including open heart surgery, liquid handling components on the space shuttle urine  
17 analyzers, and clinical instrumentation. One of those companies that uses the Optimize  
18 products is Abbott Laboratories. Fruehling Declaration, Exhibit 2, at pp. 16-17.

19 19. Optimize Technologies has built a reputation in the HPLC industry of having  
20 the best quality products. In the larger pharmaceutical community, its products are well  
21 received and they have won many awards. It was Abbott Laboratories' Supplier of the Year  
22 for two or three years running, and it has received other kudos from other companies. The  
23 OPTI name and mark is very valuable to Optimize and well recognized by its customers.  
24 Fruehling Declaration, Exhibit 2, at pp. 16-18.

25 20. Optimize has never compromised the OPTI mark or authorized any third party  
26 to distribute an OPTI-prefix branded product that is not manufactured by Optimize  
27 Technologies. Fruehling Declaration, Exhibit 2, at p. 19.

1           21.     Wicom admits that it was aware of Optimize and Optimize's OPTI-SEAL,  
2 OPTIMIZE TECHNOLOGIES, and OPTI-SOLV at the time it filed its application to register  
3 the OPTI-LIGHT mark. Fruehling Declaration, Exhibit 5, at pp. 3-4.

4           22.     Wicom states that its business is the sale of scientific and technical equipment,  
5 including vials, caps, filters, valves, seals, and software to broad markets such as hospitals,  
6 paper industry, pharmaceutical industry, chemical industry, environmental industry, and the  
7 petrol industry. Fruehling Declaration, Exhibit 2, at p. 3.

8           23.     When asked to identify with specificity, the chromatography chemicals by  
9 their common commercial names that Wicom is selling, or intends to sell under the  
10 OPTIFLOW mark, Wicom responded, "none." Fruehling Declaration, Exhibit 4, at  
11 Interrogatory No. 14.

12           24.     Wicom admits that there is no agreement with Optimize wherein Optimize  
13 consents to Applicant's use of the OPTI-LIGHT mark or any other mark incorporating the  
14 term "opti" within the United States. Fruehling Declaration, Exhibit 5, at pp. 8-9.

15           25.     Wicom admits that it has no use, sales, advertising of any goods under the  
16 OPTI-LIGHT mark in the United States. Fruehling Declaration, Exhibit 3, at pp. 4-5.

17           26.     Wicom admits that Optimize's use of the OPTI-GUARD, OPTI-MAX, OPTI-  
18 SEAL, OPTIMIZE TECHNOLOGIES, and OPTI-SOLV marks precede an use Wicom may  
19 have for the OPTI-LIGHT mark. Fruehling Declaration, Exhibit 5, at pp. 9-10.

20           27.     Wicom admits that its "analytical devices and systems for use in the chemical  
21 and physical analysis of solid, liquid and gaseous compounds and mixtures, and structural and  
22 replacement parts therefor" for which it intends to use the OPTI-LIGHT mark may be used in  
23 laboratories where HPLC equipment is used. Fruehling Declaration, Exhibit 5, at pp. 10-11.  
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1           28.    In summary, Optimize is the owner of the following United States trademark  
 2 registrations:

Mark	Registration Number	Class/Goods	First Use/ Commerce Use
OPTI	2,048,831; Issued 4/1/1997	Liquid transfer components of chemical analysis equipment, namely High-Performance Liquid Chromatography (HPLC)—pistons and plunger seals for pumps; solvent reservoir filters; inline filters; tubing; check valves; prime and purge valves; pump heads; precolumn filters; and fittings for tubing, in Int'l Class 9.	September 15, 1985/ September 15, 1985
OPTI-GUARD	2,100,801; Issued 9/30/1997	Precolumn filters and guard columns for High-Performance Liquid Chromatography (HPLC), in Int'l Class 9.	January 1994/ January 1994
OPTI-MAX	2,023,739; Issued 12/17/1996	Check valves for High-Performance Liquid Chromatography (HPLC) pumps in Int'l Class 9.	1990/1990
OPTI-SEAL	2,023,740; Issued 12/17/1996	Piston and plunger seals for High-Performance Liquid Chromatography (HPLC) pumps, in Int'l Class 9.	1998/1998
OPTIMIZE TECHNOLOGIES	2,107,751; Issued 10/21/1997	Liquid transfer components of chemical analytic equipment, namely, High-Performance Liquid Chromatography (HPLC)—tubing; fittings; packed columns; guard columns; precolumn filters; seals; pump components, namely, pump heads, pistons, plungers and seals; check valves; priming valves; priming adaptors; detector source lamps; filters, manifold ball seals; injector components, namely, syringes, seals and needles; pressure regulators; sample processor components, namely, syringes, needles, seals, washers and frits, all for HPLC instruments; HPLC	October 15, 1985/ November 1, 1985

Mark	Registration Number	Class/Goods	First Use/ Commerce Use
		maintenance kits comprising inlet cartridge check valves, outlet cartridge check valves, replacement cartridges, pistons, pump seals, filters and fittings; and HPLC fitting kits comprising tubing, nuts and ferrules, in Int'l Class 9.	
OPTI-PAK <sup>3</sup>	2,906,256 Issued 11/30/2004	Scientific instruments, namely, capillary trap cartridges for High-Performance Liquid Chromatography (HPLC) and other analytical techniques involving analyte trapping and sample purification, in Int'l Class 9.	March, 2002/ March, 2002
OPTI-SOLV <sup>4</sup>	2,906,257 Issued 11/30/2004	Scientific instruments, namely, filters for High-Performance Liquid Chromatography (HPLC), Mass Spectrometry, sample preparation, and other analytical techniques involving filtration of solvents, mobile phases, and samples, in Int'l Class 9.	February 1993/ January 30, 1996

29. In summary, Wicom is the owner of the following U.S. trademark applications:

Mark	Application Serial Number	Class/Goods	First Use/ Commerce Use
OPTIFLOW	78/059,516; Filed 11/08/2001	Laboratory filters for purification and cleaning of fluid laboratory samples, sold separately, in Int'l Class 9.	None/None
OPTI-LIGHT	78/176,019; Filed 10/18/2002	Chromatography chemicals, in Int'l Class 1; analytical devices and systems for use in the chemical and physical analysis of solid, liquid	None/None

<sup>3</sup> At the time this opposition was instituted, this application was pending. Subsequently, it registered on November 30, 2004.

<sup>4</sup> At the time this opposition was instituted, this application was pending. Subsequently, it registered on November 30, 2004.

Mark	Application Serial Number	Class/Goods	First Use/Commerce Use
		and gaseous compounds and mixtures, and structural and replacement parts therefor, in Int'l Class 9.	

**V. ARGUMENT AND CITATION TO AUTHORITY**

**A. Optimize's Trademark Rights Are Superior Because It Has Priority of Use**

The issue of priority of use is not in dispute. Optimize has clear priority of use for its OPTI and OPTI-prefix marks. Wicom's intent to use applications to register the OPTIFLOW and OPTI-LIGHT marks were filed on November 28, 2001, and October 18, 2002, and no amendments to allege use were filed. Wicom has submitted no evidence to support use of the OPTI-LIGHT and OPTIFLOW marks. Wicom has not filed a proper counterclaim for cancellation of Optimizes prior marks based on prior use. Wicom can only claim a constructive priority of use going back to the filing dates of its applications. 15 U.S.C. § 1057(a).

Optimize is the owner of seven prior registrations including an incontestable registrations for the OPTI mark, filed on December 15, 1995, with a first use and use in commerce date of September 15, 1985, as well as incontestable registrations for the OPTI-GUARD, OPTI-MAX, OPTI-SEAL, and OPTIMIZE TECHNOLOGIES marks. All of these marks were all filed prior to the filing of Wicom's OPTIFLOW and OPTI-LIGHT applications. The dates of first use and use in commerce for these registrations also precede the filing dates of Wicom's applications. The two remaining registered marks (OPTI-SOLV and OPTI-PAK) were filed after Wicom's applications, but the dates of first us and use in commerce also precede the filing dates of Wicom's applications.

Wicom admits that Optimize's use of the OPTI-GUARD, OPTI-MAX, OPTI-SEAL, OPTIMIZE TECHNOLOGIES, and OPTI-SOLV marks precede an use Wicom may have for the OPTI-LIGHT mark. Fruehling Declaration, Exhibit 5, at pp. 9-10. At the same time,

1 Wicom admits that it has no use of the OPTI-LIGHT mark. Fruehling Declaration, Exhibit 3,  
2 at pp. 4-5.

3 Under no circumstances can Wicom claim priority of use. Optimize therefore requests  
4 that the Board find in its favor that it has priority of use.

5 **B. The Application of the *Dupont* Factors Clearly Demonstrates That Wicom's**  
6 **OPTIFLOW and OPTI-LIGHT Marks Are Likely to Be Confused With**  
7 **Optimize's Prior Registrations for OPTI, OPTI-GUARD, OPTI-MAX,**  
8 **OPTI-SEAL, OPTIMIZE TECHNOLOGIES, OPTI-PAK, and OPTI-SOLV**

9 The leading case relied on in deciding likelihood of confusion cases is the *Dupont*  
10 decision that sets out in detail the factors to be considered when they are of record.  
11 *Application of E.I. Dupont de Nemours & Co.*, 177 U.S.P.Q. 563 (C.C.P.A. 1973).

12 Of those thirteen factors, the following seven are relevant to the analysis in this case:

- 13 1. The similarity or dissimilarity of the marks in their entireties as to appearance,  
14 sound, connotation, and commercial impression;
- 15 2. The similarity or dissimilarity and nature of those goods as described in the  
16 application or registration or in connection with which a prior mark is in use;
- 17 3. The similarity or dissimilarity of established, likely to continue trade channels;
- 18 4. The fame of the prior marks (sales, advertising, length of use);
- 19 5. The variety of goods on which the mark is uses or not used (house mark,  
20 "family" or marks. product mark);
- 21 6. The market interface between applicant and the owner of the prior mark; and
- 22 7. Any other established fact probative to the effect of use.

23 A careful application of these DuPont factors will prove that there is a likelihood of  
24 confusion between Optimize's marks and Wicom's marks and consequently, the OPTIFLOW  
25 and OPTI-LIGHT marks should not be allowed to register.  
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1 **C. The Marks Are Similar in Their Entireties as to Appearance, Sound,**  
2 **Connotation and Commercial Impression Because Wicom's Use of the Prefix**  
3 **OPTI Is Identical to Optimize's Use of the OPTI Prefix**

4 All of Optimize's prior registered marks use the house mark OPTI-prefix in  
5 combination with other terms.<sup>5</sup> Likewise, Wicom's marks also employ the use of the OPTI  
6 prefix together with an additional descriptive or highly descriptive term. Optimize's marks  
7 and Wicom's marks are identical in their use. This projects to the consumer a similar overall  
8 commercial impression.

9 Optimize is well aware that the marks are not to be dissected into their component  
10 parts, but are to be considered in their entireties. At the same time, it is well established that  
11 marks may be dominated by a particular component and more attention and weight may be  
12 paid to a particularly dominant component of a mark. *In re National Data Corp.*,  
13 224 U.S.P.Q. 749 (Fed. Cir. 1985).

14 It is also well established that if two marks share a common component, adding a  
15 highly suggestive or descriptive term to that common component is usually insufficient to  
16 avoid a likelihood of confusion. *See In re El Torito Restaurants, Inc.*, 9 U.S.P.Q.2d 2002  
(T.T.A.B. 1988).

17 Wicom's marks use of the dominant "opti" prefix with a highly suggestive or  
18 descriptive terms in its marks. The OPTIFLOW mark combines "opti" with the term "flow."  
19 This is highly suggestive of filters used for fluid samples, wherein the fluid presumably flows  
20 through the filters. Likewise, OPTI-LIGHT marks use the prefix "opti" with the term "light."  
21 "Light" could be considered highly suggestive or descriptive of an analytical device which  
22 employs a lamp or other illumination device. The OPTI-LIGHT the mark also employs the  
23 use of a hyphen to separate the terms, which is the same usage as Optimize's.

24 Wicom's OPTIFLOW and OPTI-LIGHT marks are very similar to Optimize's OPTI,  
25 OPTI-GUARD, OPTI-MAX, OPTI-SEAL, OPTI-PAK, OPTI-SOLV marks. Optimize

26 \_\_\_\_\_  
27 <sup>5</sup> With the exception of the OPTIMIZE TECHNOLOGIES registration, which although using OPTI as  
a prefix, does not combine it with a separable term.

1 requests the Board to find the marks confusingly similar based on their appearance, sound,  
2 connotation, and commercial impression.

3 **D. The Goods as Described in Optimize's Registrations and Wicom's Applications**  
4 **Are Similar and Related Because They Are Used for Chemical Analysis in the**  
5 **Field of Chromatography**

6 Wicom seeks to register its marks for laboratory goods, including laboratory filters,  
7 chromatography chemicals, and analytical devices and systems for use in the chemical and  
8 physical analysis. Fruehling Declaration, Exhibit 2, at p. 3. Wicom's goods are related if not  
9 identical to Optimize's HPLC goods, which likewise are used in chemical analysis. Fruehling  
10 Declaration, Exhibit 2, at p. 5.

11 The parties' goods do not have to be identical or even competitive for the  
12 determination to be made that there is a likelihood of confusion. The question to be asked is  
13 whether the goods are related, not identical, and whether the public will be confused about  
14 their source. *See Safety-Clean Corp. v. Dresser Indus., Inc.*, 186 U.S.P.Q. 476-480 (C.C.P.A.  
15 1975). It is merely sufficient that the applicant's goods and the registrant's goods are so  
16 related that the circumstances surrounding their marketing are such that they are likely to be  
17 encountered by the same persons under circumstances that would give rise to the mistaken  
18 belief that they originate from the same source. *See On-Line Careline, Inc. v. America*  
19 *Online, Inc.*, U.S.P.Q.2d 1471 (Fed. Cir. 2000).

20 Optimize believes that the relatedness of the parties' goods is evident from the  
21 identification of goods in the Optimize registrations and Wicom's applications, and that these  
22 identifications in themselves constitute evidence of the relatedness of the parties' goods. *See*  
23 *Hewlett-Packard Co. v. Packard Press, Inc.*, 62 U.S.P.Q. 1001, 1004 (Fed. Cir. 2002).

24 Optimize's goods are parts and components for HPLC applications. This includes  
25 inline filters, precolumn filters, for the filtration of solvents, mobile phases, and other  
26 samples. Wicom's goods for which it intends to register its OPTIFLOW mark are "laboratory  
27 filters for purification and cleaning of fluid laboratory samples," and for its OPTI-LIGHT

1 mark "chromatography chemicals and analytical devices and systems for use in the chemical  
2 and physical analysis of solid, liquid, and gaseous compounds and mixtures and structural  
3 replacements therefor."

4 Wicom's business is the sale of scientific and technical equipment including vials,  
5 caps, filters, valves, seals, and software to brand markets including the pharmaceutical  
6 industry, the chemical industry, and others. Fruehling Declaration, Exhibit 2, at p. 3. All of  
7 Optimize's HPLC related components, analytical devices, systems, and replacement parts are  
8 the same or related to Wicom's chromatography chemicals and analytical devices for use in  
9 chemical and physical analysis of solid, liquid and gaseous compounds, and mixtures and  
10 structural and replacement parts therefor. Fruehling Declaration, Exhibit 2, at p. 14. Indeed,  
11 Wicom has admitted that the analytical devices for which it intends to use the OPTI-LIGHT  
12 mark, may be used in laboratories where HPLC equipment is also used. Fruehling  
13 Declaration, Exhibit 5, at pp. 10-11.

14 There can be no doubt that Wicom's goods are related and similar to Optimize's. This  
15 similarity will result in a likelihood of confusion.

16 **E. Wicom's Goods Will Be Sold in the Same Trade Channels in Which Optimize Is**  
17 **Already Selling Its Goods**

18 As discussed above, Optimize's goods and Wicom's goods are very similar and related.  
19 As such, they will move through the same trade channels. Those trade channels would be  
20 laboratories and other companies that use filters, solvents, and other related components for  
21 HPLC and other analysis techniques. The trade channels for the parties' respective goods will  
22 be the same. Fruehling Declaration, Exhibit 2, at pp. 12-18.

23 **F. Optimize's Use and Promotion of its OPTI Marks Has Resulted in a High Degree**  
24 **of Fame in the Marketplace**

25 Since 1985, Optimize has advertised and sold its products through dealers throughout  
26 the world and the United States. Fruehling Declaration, Exhibit 2, at p. 6. It has also  
27 advertised in the trade journals, including the LCGC (Liquid Chromatography/Gas

1 Chromatography Journal) Journal. It has also advertised through the European version of  
2 LCGC. *Id.* Optimize's marks, OPTI-GUARD, OPTI-MAX, OPTI-SEAL, and OPTIMIZE  
3 TECHNOLOGIES have been used continuously January 1994, 1990, 1988, and October 15,  
4 1985, respectively. Fruehling Declaration, Exhibit 2, at p. 15. Optimize has also been using  
5 the marks OPTI-SOLV and OPTI-PAK and marketing and selling products using those marks  
6 continuously since March 2002 and February 1993, respectively. *Id.* Optimize has built a  
7 reputation in the industry of having high quality products. Its products are well received and  
8 have won many awards. It was Abbott Laboratories' supplier of the year for two or three  
9 years running and has received other kudos from other companies. The OPTI name is very  
10 valuable to Optimize and well recognized by its customers. Fruehling Declaration, Exhibit 2,  
11 at pp. 17-18.

12 Optimize has used its house mark OPTI continuously for now over 20 years, and  
13 subsequently has filed and registered additional OPTI prefixed marks for its HPLC products,  
14 and has registered its company name OPTIMIZE TECHNOLOGIES. Optimize believes that,  
15 based on its longtime use and registration of its OPTI prefix marks, Optimize's marks have  
16 achieved a high degree of fame in the marketplace. Therefore, given the relative fame of  
17 Optimize's OPTI and OPTI-prefix marks, they are to be considered similar to Wicom's OPTI  
18 prefix marks and for which registration will result in a likelihood of confusion.

19 **G. Optimize's Family of OPTI Marks Are Used and for a Variety of Goods and**  
20 **Have Been Registered as a House Mark, OPTI, and as Individual OPTI-GUARD,**  
21 **OPTI-SOLV, OPTI-LOCK, OPTI-MAX, and OPTI-PAK Product Marks**

22 Under its registered house mark OPTI and other OPTI-prefix marks, Optimize  
23 Technologies sells close to 500 different products in the United States.<sup>6</sup> Fruehling  
24 Declaration, Exhibit 1, at Exhibit F, attached thereto; Exhibit 2, at pp. 5-6. Wicom's similar  
25 OPTIFLOW and OPTI-LIGHT marks will be used for similar goods in the same filed and

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26  
27 <sup>6</sup> Optimize's other OPTI-prefix marks, include OPTI-DRAW, OPTI-LOK, OPTI-PEEK, and OPTI-  
LYNX.

1 sold though the same channels of trade. If Wicom's marks are in use and allowed to register,  
2 they will be viewed by consumers who are likely to be confused on the belief that they are a  
3 further expansion of the Optimizes family of marks.

4 **H. Wicom Was a Distributor of Optimize's OPTI and OPTI-Prefix Branded**  
5 **Products in Germany at the Time of the Filing of Its OPTI-LIGHT and**  
6 **OPTIFLOW Applications**

7 Wicom was Optimize's distributor in Germany. Wicom approached Optimize at trade  
8 show and stated they were interested in becoming a dealer. Wicom became Optimize's dealer  
9 in Germany, sometime in the late 1980s or early 1990s. Fruehling Declaration, Exhibit 2, at  
10 p. 11. This relationship is now considered terminated.<sup>7</sup>

11 It is well established that the intent of the alleged infringer to gain through confusing  
12 customers or others is relevant to the issue of likelihood of confusion. *McCarthy on*  
13 *Trademarks*, Section 23:110, and the cases cited therein. If an intent to confuse is shown, it  
14 raises a presumption that deception and confusion resulted. *Id.* Furthermore, if there is proof  
15 of the infringer's intent and purpose to trade on others' goodwill by using some mark to cause  
16 confusion, then a court will follow the alleged infringer's judgment and find a likelihood of  
17 confusion. *Id.* If Optimize can provide proof that Wicom knew of Optimize's marks at the  
18 time defendant chose its mark, this has been relied upon as evidence of bad faith and intention  
19 to trade upon Optimize's good will. *McCarthy*, Section 23:115 and the cases cited therein.

20 Wicom was well aware of an OPTI-FLOW branded product and other OPTI-prefix  
21 products sold by Optimize, at the time Wicom adopted the OPTIFLOW mark. Attached as  
22 Exhibit 1 to the Fruehling Declaration, Exhibit 2, is a page from Optimize's 1997-1998  
23 catalog, together with the catalog cover. On that page of the catalog is a product called  
24 "OPTI-FLOW." Optimize began marketing and selling the OPTI-FLOW product in the  
25 mid-1990s, and it appeared in the 1997-1998 catalog. Although Optimize no longer sells the

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26 <sup>7</sup> Beginning on September 28, 2005, Optimize sent a series of emails to Brian Fera, CEO, of Wicom to  
27 inform him that the distributor relationship was being terminated by Optimize. These emails were returned. On  
November 11, 2005 a certified-type letter requiring signature for receipt was sent informing him of same.

1 product, it continues to provide support for the flow meter. Fruehling Declaration, Exhibit 2,  
2 at p. 20. The OPTI-FLOW product was marketed throughout the world and was available for  
3 sale through any of the Optimize dealers, which have also included Germany. As Optimize's  
4 dealer in Germany, Wicom was aware of Optimize's prior use of the OPTI-FLOW mark for a  
5 flow meter at the time it adopted the OPTIFLOW mark for intended use and registration in  
6 the United States.

7 Sometime in 2001, Optimize learned that Wicom had come out with a line of filters  
8 called OPTIFLOW. Optimize, through its President, Doug Ford, discussed this with  
9 Dr. Brian Fera, CEO, of Wicom, at a trade show and objected to his use of the OPTIFLOW  
10 mark. On October 12, 2001, Mr. Ford sent an email to Dr. Fera to voice his concerns about  
11 Wicom's adoption for use of the OPTI-FLOW mark. Optimize contended that Wicom's use  
12 would give rise to confusion to the customer and to the industry that these filters sold by  
13 Wicom were manufactured or somehow associated with Optimize. Fruehling Declaration,  
14 Exhibit 2, at p. 19; Exhibit 6, OPTI 00001-000010. This use of OPTIFLOW was not  
15 authorized by Optimize. Fruehling Declaration, Exhibit 5, at pp. 8-9. When Optimize  
16 became aware of Wicom's use, it objected, both verbally and in writing. Despite Optimize's  
17 protests, Wicom persisted in using the mark. Wicom subsequently filed its U.S. trademark  
18 application for registration of the mark on November 28, 2001.

19 Wicom also admits that it was aware of Optimize and Optimize's OPTI-GUARD,  
20 OPTI-MAX, OPTI-SEAL, OPTI-SOLV, and OPTIMIZE TECHNOLOGIES marks at the  
21 time Applicant filed to register its OPTI-LIGHT mark. Fruehling Declaration, Exhibit 5, at  
22 pp. 3-4.

23 Optimize concludes that Wicom, based on its prior knowledge of Optimize's  
24 OPTI-prefix marks, deliberately chose the OPTIFLOW and OPTI-LIGHT marks for use and  
25 registration, and this use was intended to profit on confusion with Optimize and its prior use  
26 of its OPTI marks.

**VI. CONCLUSION**

Optimize requests that its opposition to the registration of U.S. Trademark Application Serial No. 78/095,516, for the mark OPTIFLOW, and U.S. Trademark Application Serial No. 78/176,019, for the mark OPTI-LIGHT, be GRANTED, and Wicom's applications be

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1 DENIED registration under Section 2(d) of the Trademark Act, 15 U.S.C. § 1052(d), and  
2 Section 2(a) of the Trademark Act, 15 U.S.C. §1052(a).

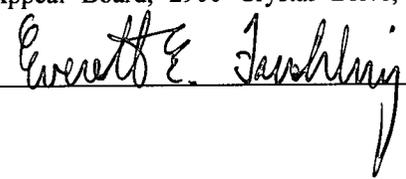
3 Dated this 28th day of November, 2005.

5 CHRISTENSEN O'CONNOR  
6 JOHNSON KINDNESS<sup>PLLC</sup>

7  
8   
9 \_\_\_\_\_  
10 Everett E. Fruehling  
11 Steven P. Fricke  
12 Attorneys for Opposer Optimize  
13 Technologies, Inc.

14 **CERTIFICATE OF MAILING**

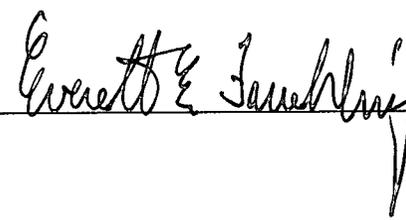
15 I hereby certify that this Opposer's Brief in Support of Opposition is being deposited with the  
16 U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to  
17 the Commissioner for Trademarks, Trademark Trial and Appeal Board, 2900 Crystal Drive, Arlington,  
18 VA 22202-3514, on the below date.

18 Date: 11-28-05 

19 **CERTIFICATE OF SERVICE**

20 I hereby certify that on the 28th day of November, 2005, a true copy of the foregoing Opposer's Brief in  
21 Support of Opposition was served on counsel for Applicant via first-class mail to:

22 Stanley C. Macel, III, Esq.  
23 Connolly Bove Lodge & Hutz LLP  
24 1007 North Orange Street  
25 Wilmington, DE 19801

26 Executed on: 11-28-05 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Optimize Technologies, Inc.,  
Opposer,  
v.  
Wilcom GmbH,  
Applicant.

No. 91156666

DECLARATION OF EVERETT E.  
FRUEHLING IN SUPPORT OF  
OPPOSER'S BRIEF IN SUPPORT  
OF OPPOSITION

I, Everett E. Fruehling declare as follows:

1. I am one of the attorneys for Optimize Technologies, Inc. in this opposition and I make this Declaration in Support of Opposer's Brief in Support of Opposition. I have personal knowledge of the facts set forth in this declaration.

2. Attached as Exhibit 1 is a true and correct copy of Opposer's Notice of Reliance Pursuant to Rule 2.122(d)(2) and Rule 2.122(e).

3. Attached as Exhibit 2 is a true and correct copy of Deposition Upon Oral Examination of Doug Ford, conducted August 17, 2004, in Seattle, Washington.

4. Attached as Exhibit 3 is a true and correct copy of the relevant pages from Applicant's Responses to Opposer's First Set of Interrogatories.

5. Attached as Exhibit 4 is a true and correct copy of the relevant pages from Applicant's Responses to Opposer's Second Set of Interrogatories.

6. Attached as Exhibit 5 is a true and correct copy of the relevant pages from Applicant's Responses to Opposer's First Set of Requests for Admissions.

7. Attached as Exhibit 6 are true and correct copies of documents numbered OPTI 00001 through OPTI 00010.

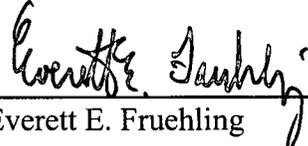
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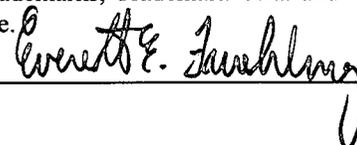
1 I declare under penalty of perjury that the foregoing is true and correct.

2 Dated this 28th day of November, 2005.

3  
4   
5 \_\_\_\_\_  
6 Everett E. Fruehling

7 **CERTIFICATE OF MAILING**

8  
9 I hereby certify that this Declaration of Everett E. Fruehling in Support of Opposer's Brief in Support of  
10 Opposition is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage  
11 thereon fully prepaid and addressed to the Commissioner for Trademarks, Trademark Trial and Appeal Board,  
12 2900 Crystal Drive, Arlington, VA 22202-3514, on the below date.

13 Date: 11-28-05   
14 \_\_\_\_\_

15 **CERTIFICATE OF SERVICE**

16 I hereby certify that on the 28th day of November, 2005, a true copy of the foregoing Declaration of  
17 Everett E. Fruehling in Support of Opposer's Brief in Support of Opposition was served on counsel for Applicant  
18 via first-class mail to:

19 Stanley C. Macel, III, Esq.  
20 Connolly Bove Lodge & Hutz LLP  
21 1007 North Orange Street  
22 Wilmington, DE 19801

23 Executed on: 11-28-05   
24 \_\_\_\_\_

# EXHIBIT 1

1  
2  
3 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

4 Optimize Technologies, Inc.,  
5 Opposer,

Opposition No. 91156666

6 v.

7 Wicom GmbH,  
8 Applicant.

9  
10 **OPPOSER'S NOTICE OF RELIANCE PURSUANT TO RULE 2.122(d)(2) and 2.122(e)**

11 Opposer, by its attorney, hereby submits this Notice of Reliance pursuant to Rule  
12 2.122(d)(2). Specifically, Opposer relies on its pleaded Registration Nos. as follows:

- 13 > Registration No. 2,048,831, attached as Exhibit A;
- 14 > Registration No. 2,100,804, attached as Exhibit B;
- 15 > Registration No. 2,023,739, attached as Exhibit C;
- 16 > Registration No. 2,023,740, attached as Exhibit D; and
- 17 > Registration No. 2,107,751, attached as Exhibit E.

18 Opposer submits herewith certified copies of said registrations, said copies showing  
19 both the current status of and current title to the registration.

20 Opposer, by its attorney, also hereby submits this Notice of Reliance pursuant to Rule  
21 2.122(e). Specifically, Opposer relies on the following printed publication available to the  
22 general public in libraries or of general circulation among members of the public or that  
23 segment of the public that is relevant under the issues in this proceeding:

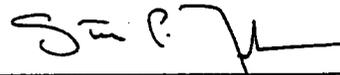
- 24 > OPTIMIZE TECHNOLOGIES Finest Liquid Chromatography & Fluid  
25 Handling Components 1997-1998 (attached as Exhibit F).

26 The printed publication is relevant to show that analytical devices and systems for use  
27 in the chemical and physical analysis of solid, liquid and gaseous compounds and mixtures

1 and structural and replacement parts of the type identified by Applicant's application are  
2 promoted to identical classes of consumers.

3 Dated this 20<sup>th</sup> day of AUGUST, 2004.

5 CHRISTENSEN O'CONNOR  
6 JOHNSON KINDNESS<sup>PLLC</sup>

8 

9 \_\_\_\_\_  
10 Everett E. Fruehling  
11 Steven P. Fricke  
12 Attorneys for Opposer Optimize  
13 Technologies, Inc.

### 14 CERTIFICATE OF MAILING

15 I hereby certify that this OPPOSER'S NOTICE OF RELIANCE PURSUANT TO RULE 2.122(d)(2)  
16 AND 2.122(e) is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with  
17 postage thereon fully prepaid and addressed to the Commissioner for Trademarks, Trademark Trial and Appeal  
18 Board, 2900 Crystal Drive, Arlington, VA 22202-3514, on the below date:

19 Date:

20 August 20, 2004

21 

### 22 CERTIFICATE OF SERVICE

23 I hereby certify that on the 20th day of August, 2004, a true copy of the foregoing OPPOSER'S  
24 NOTICE OF RELIANCE PURSUANT TO RULE 2.122(d)(2) AND 2.122(e) was served on counsel for  
25 Applicant via first-class mail to:

26 Stanley C. Macel, III, Esq.  
27 Connolly Bove Lodge & Hutz LLP  
1007 North Orange Street  
Wilmington, DE 19899  
Facsimile No. 302.658.5614

Executed on: Aug 20, 2004

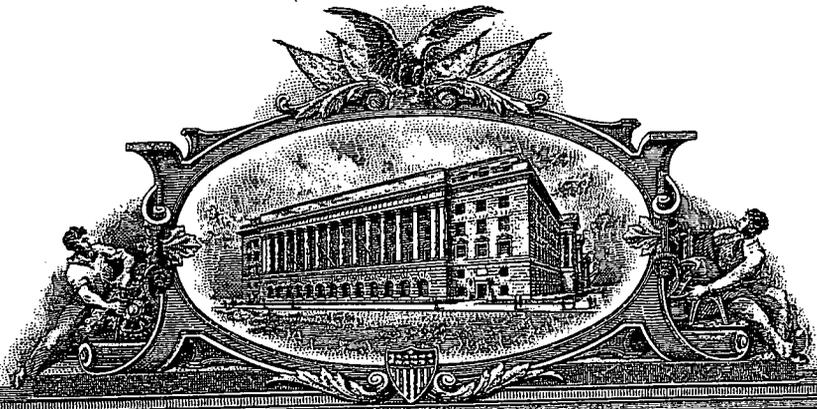


SENT TO CLIENT 8/23/04

via mail

**EXHIBIT A**

1212402



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

August 17, 2004

THE ATTACHED U.S. TRADEMARK REGISTRATION 2,048,831 IS CERTIFIED TO BE A TRUE COPY WHICH IS IN FULL FORCE AND EFFECT WITH NOTATIONS OF ALL STATUTORY ACTIONS TAKEN THEREON AS DISCLOSED BY THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE.

REGISTERED FOR A TERM OF 10 YEARS FROM *April 01, 1997*

SECTION 8 & 15

SAID RECORDS SHOW TITLE TO BE IN:

*REGISTRANT*

By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS



  
M. K. HAWKINS  
Certifying Officer

Int. Cl.: 9

Prior U.S. Cls.: 21, 23, 26, 36 and 38

Reg. No. 2,048,831

United States Patent and Trademark Office

Registered Apr. 1, 1997

**TRADEMARK  
PRINCIPAL REGISTER**

**OPTI**

OPTIMIZE TECHNOLOGIES, INC. (OREGON  
CORPORATION)  
13993 FIR STREET  
OREGON CITY, OR 97045

FOR: LIQUID TRANSFER COMPONENTS OF  
CHEMICAL ANALYSIS EQUIPMENT,  
NAMELY HIGH-PERFORMANCE LIQUID  
CHROMATOGRAPHY (HPLC) - PISTONS AND  
PLUNGER SEALS FOR PUMPS; SOLVENT  
RESERVOIR FILTERS; IN-LINE FILTERS;

TUBING; CHECK VALVES; PRIME AND  
PURGE VALVES; PUMP HEADS, PRECOLUMN  
FILTERS; AND FITTINGS FOR TUBING, IN  
CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

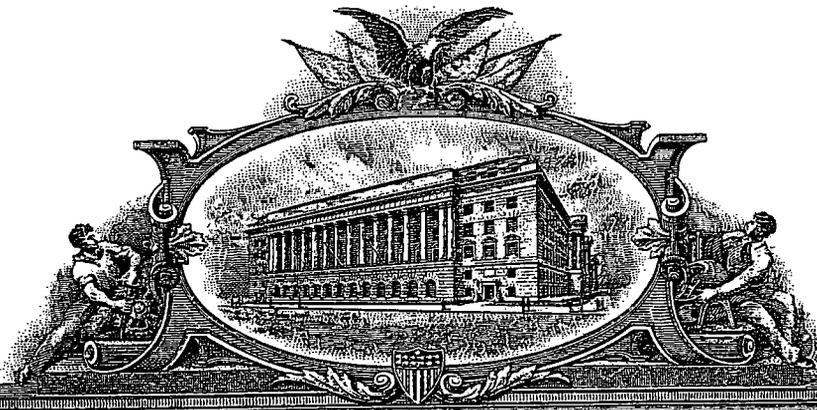
FIRST USE 9-15-1985; IN COMMERCE  
9-15-1985.

SER. NO. 75-035,122, FILED 12-21-1995.

CONNIE M. JUDGE, EXAMINING ATTORNEY

**EXHIBIT B**

1212400



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

August 17, 2004

THE ATTACHED U.S. TRADEMARK REGISTRATION 2,100,804 IS CERTIFIED TO BE A TRUE COPY WHICH IS IN FULL FORCE AND EFFECT WITH NOTATIONS OF ALL STATUTORY ACTIONS TAKEN THEREON AS DISCLOSED BY THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE.

REGISTERED FOR A TERM OF 10 YEARS FROM *September 30, 1997*

SECTION 8 & 15

SAID RECORDS SHOW TITLE TO BE IN:

*REGISTRANT*

By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS



M. K. HAWKINS  
Certifying Officer

**Int. Cl.: 9**

**Prior U.S. Cls.: 21, 23, 26, 36 and 38**

**Reg. No. 2,100,804**

**United States Patent and Trademark Office**

**Registered Sep. 30, 1997**

**TRADEMARK  
PRINCIPAL REGISTER**

**OPTI-GUARD**

**OPTIMIZE TECHNOLOGIES, INC. (OREGON  
CORPORATION)  
13993 FIR STREET  
OREGON CITY, OR 97045**

**LIQUID CHROMATOGRAPHY (HPLC), IN  
CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).  
FIRST USE 1-0-1994; IN COMMERCE  
1-0-1994.**

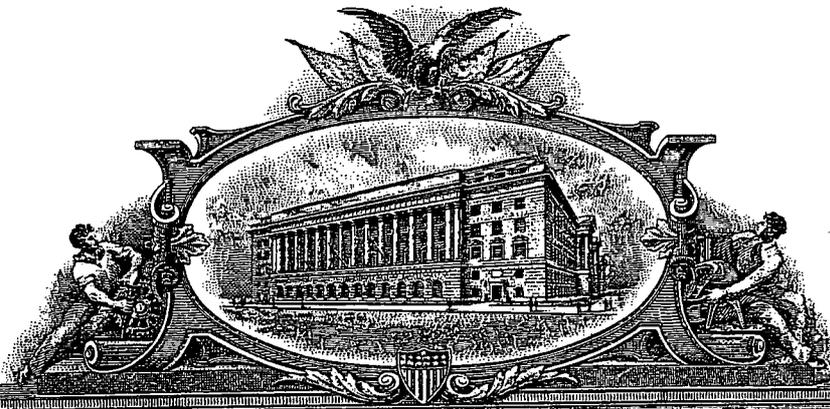
**FOR: PRECOLUMN FILTERS AND GUARD  
COLUMNS FOR HIGH-PERFORMANCE**

**SER. NO. 75-035,264, FILED 12-21-1995.**

**CONNIE M. JUDGE, EXAMINING ATTORNEY**

**EXHIBIT C**

1212398



**THE UNITED STATES OF AMERICA**

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**August 17, 2004**

**THE ATTACHED U.S. TRADEMARK REGISTRATION 2,023,739 IS  
CERTIFIED TO BE A TRUE COPY WHICH IS IN FULL FORCE AND  
EFFECT WITH NOTATIONS OF ALL STATUTORY ACTIONS TAKEN  
THEREON AS DISCLOSED BY THE RECORDS OF THE UNITED STATES  
PATENT AND TRADEMARK OFFICE.**

**REGISTERED FOR A TERM OF 10 YEARS FROM *December 17, 1996***

**SECTION 8 & 15**

**SAID RECORDS SHOW TITLE TO BE IN:**

***REGISTRANT***

**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**



**M. K. HAWKINS  
Certifying Officer**

**Int. Cl.: 9**

**Prior U.S. Cls.: 21, 23, 26, 36 and 38**

**Reg. No. 2,023,739**

**United States Patent and Trademark Office**

**Registered Dec. 17, 1996**

**TRADEMARK  
PRINCIPAL REGISTER**

**OPTI-MAX**

**OPTIMIZE TECHNOLOGIES, INC. (OREGON  
CORPORATION)  
13993 FIR STREET  
OREGON CITY, OR 97045**

**(HPLC) PUMPS, IN CLASS 9 (U.S. CLS. 21, 23,  
26, 36 AND 38).  
FIRST USE 0-0-1990; IN COMMERCE  
0-0-1990.**

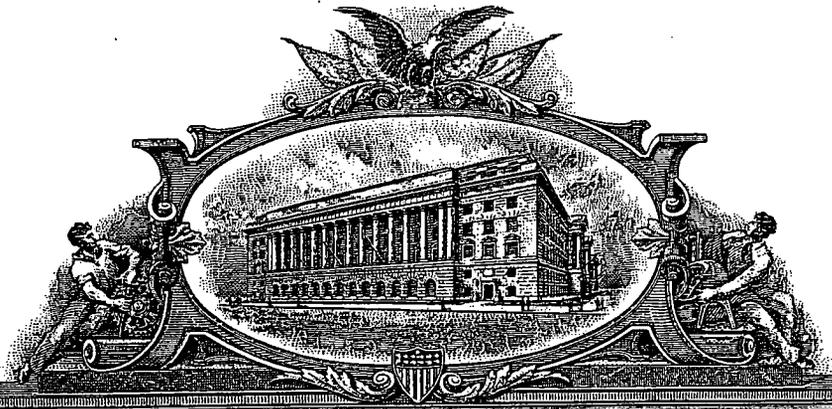
**FOR: CHECK VALVES FOR HIGH-PER-  
FORMANCE LIQUID CHROMATOGRAPHY**

**SER. NO. 75-035,134, FILED 12-21-1995.**

**CONNIE M. JUDGE, EXAMINING ATTORNEY**

**EXHIBIT D**

1212392



**THE UNITED STATES OF AMERICA**

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**August 18, 2004**

**THE ATTACHED U.S. TRADEMARK REGISTRATION 2,023,740 IS CERTIFIED TO BE A TRUE COPY WHICH IS IN FULL FORCE AND EFFECT WITH NOTATIONS OF ALL STATUTORY ACTIONS TAKEN THEREON AS DISCLOSED BY THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE.**

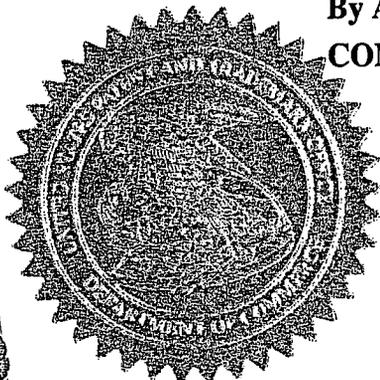
**REGISTERED FOR A TERM OF 10 YEARS FROM *December 17, 1996***

**SECTION 8 & 15**

**SAID RECORDS SHOW TITLE TO BE IN:**

***REGISTRANT***

**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**



  
N. WILLIAMS

**Certifying Officer**

**Int. Cl.: 9**

**Prior U.S. Cls.: 21, 23, 26, 36 and 38**

**Reg. No. 2,023,740**

**United States Patent and Trademark Office**

**Registered Dec. 17, 1996**

**TRADEMARK  
PRINCIPAL REGISTER**

**OPTI-SEAL**

**OPTIMIZE TECHNOLOGIES, INC. (OREGON  
CORPORATION)  
13993 FIR STREET  
OREGON CITY, OR 97045**

**RAPHY (HPLC) PUMPS, IN CLASS 9 (U.S. CLS.  
21, 23, 26, 36 AND 38).  
FIRST USE 0-0-1988; IN COMMERCE  
0-0-1988.**

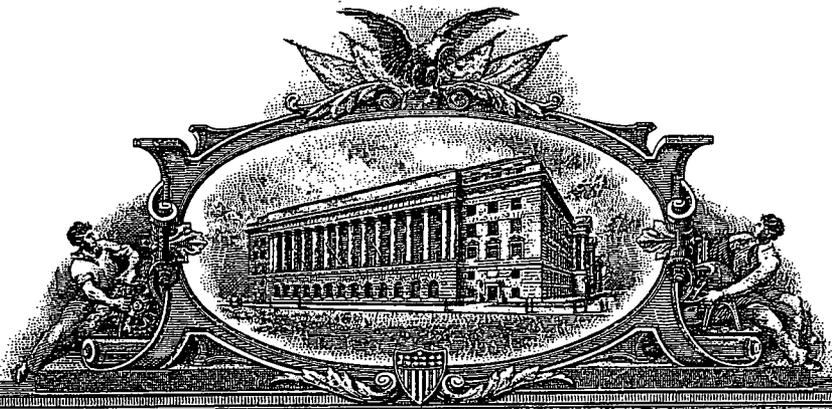
**FOR: PISTON AND PLUNGER SEALS FOR  
HIGH-PERFORMANCE LIQUID CHROMATOG-**

**SER. NO. 75-035,135, FILED 12-21-1995.**

**CONNIE M. JUDGE, EXAMINING ATTORNEY**

**EXHIBIT E**

1212393



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**August 17, 2004**

**THE ATTACHED U.S. TRADEMARK REGISTRATION 2,107,751 IS CERTIFIED TO BE A TRUE COPY WHICH IS IN FULL FORCE AND EFFECT WITH NOTATIONS OF ALL STATUTORY ACTIONS TAKEN THEREON AS DISCLOSED BY THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE.**

**REGISTERED FOR A TERM OF 10 YEARS FROM *October 21, 1997***

**SECTION 8 & 15**

**AMENDMENT/CORRECTION/NEW CERT(SEC7) ISSUED**

**LESS GOODS**

**SAID RECORDS SHOW TITLE TO BE IN:**

***REGISTRANT***

**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**



  
**M. K. HAWKINS**  
**Certifying Officer**

Int. Cl.: 9

Prior U.S. Cls.: 21, 23, 26, 36 and 38

Reg. No. 2,107,751

United States Patent and Trademark Office

Registered Oct. 21, 1997

Corrected

OG Date Apr. 7, 1998

**TRADEMARK  
PRINCIPAL REGISTER**

**OPTIMIZE TECHNOLOGIES**

OPTIMIZE TECHNOLOGIES, INC.  
(OREGON CORPORATION)  
13993 FIRST STREET  
OREGON CITY, OR 97045

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE "TECHNOLOGIES", APART FROM THE MARK AS SHOWN.

FOR: LIQUID TRANSFER COMPONENTS OF CHEMICAL ANALYTIC EQUIPMENT, NAMELY, HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC) TUBING; FITTINGS; PACKED [COLUMNS] \* COLUMNS \* ; GUARD COLUMNS; PRECOLUMN FILTERS; SEALS; PUMP COMPONENTS, NAMELY, PUMPHEADS, PISTONS, PLUNGERS AND SEALS; CHECK VALVES; PRIMING VALVES; PRIMING ADAPTERS; DETECTOR SOURCE LAMPS; FILTERS; MANIFOLD BALL SEALS; [CHECK VALVES, PRIMING

VALVES; PRIMING ADAPTERS; DETECTOR SOURCE LAMPS; FILTERS; MANIFOLD BALL SEALS; INJECTOR COMPONENTS, NAMELY, SYRINGES, [NEEDLES,] SEALS AND NEEDLES; PRESSURE REGULATORS; SAMPLE PROCESSOR COMPONENTS, NAMELY, SYRINGES, NEEDLES, SEALS, WASHERS AND FRITS, ALL FOR HPLC INSTRUMENTS; HPLC MAINTENANCE KITS [INCLUDING] \* COMPRISING \* INLET CARTRIDGE CHECK VALVES, OUTLET CARTRIDGE CHECK VALVES, REPLACEMENT CARTRIDGES, PISTONS, PUMP SEALS, FILTERS AND FITTINGS; AND HPLC FITTING KITS COMPRISING TUBING, NUTS AND FERRULES, IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

FIRST USE 10-15-1985; IN COMMERCE 11-1-1985.

SER. NO. 75-035,268, FILED 12-21-1995.

*In testimony whereof I have hereunto set my hand  
and caused the seal of The Patent and Trademark  
Office to be affixed on Apr. 7, 1998.*

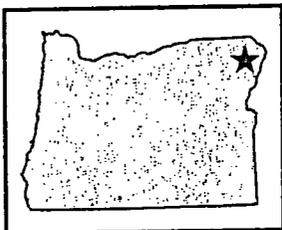
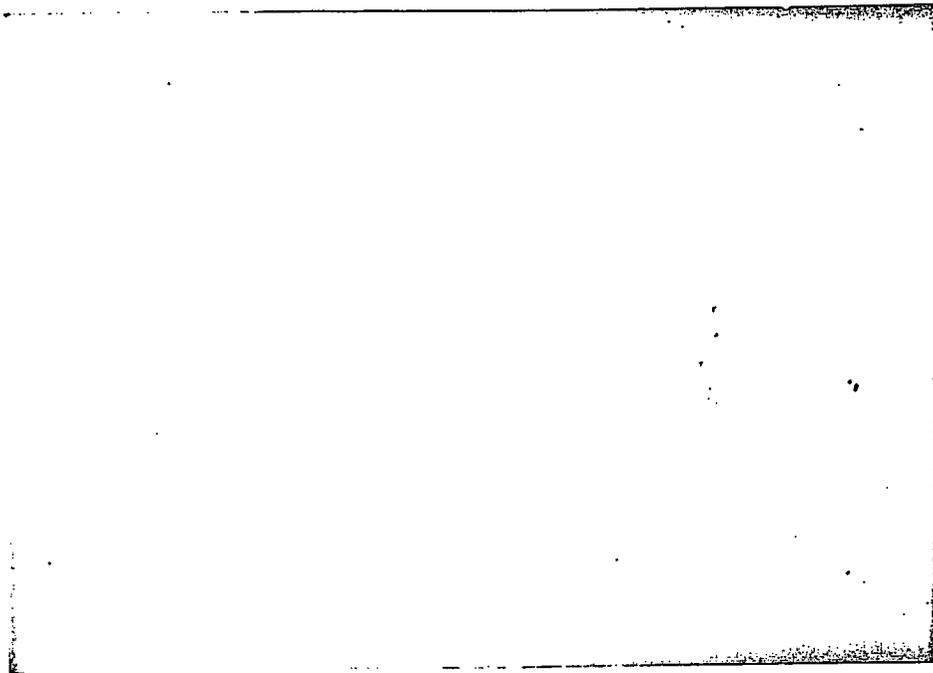
COMMISSIONER OF PATENTS AND TRADEMARKS

**EXHIBIT F**



**OPTIMIZE**  
TECHNOLOGIES

**Finest Liquid Chromatography  
&  
Fluid Handling  
Components  
1997-1998**



On The Cover:

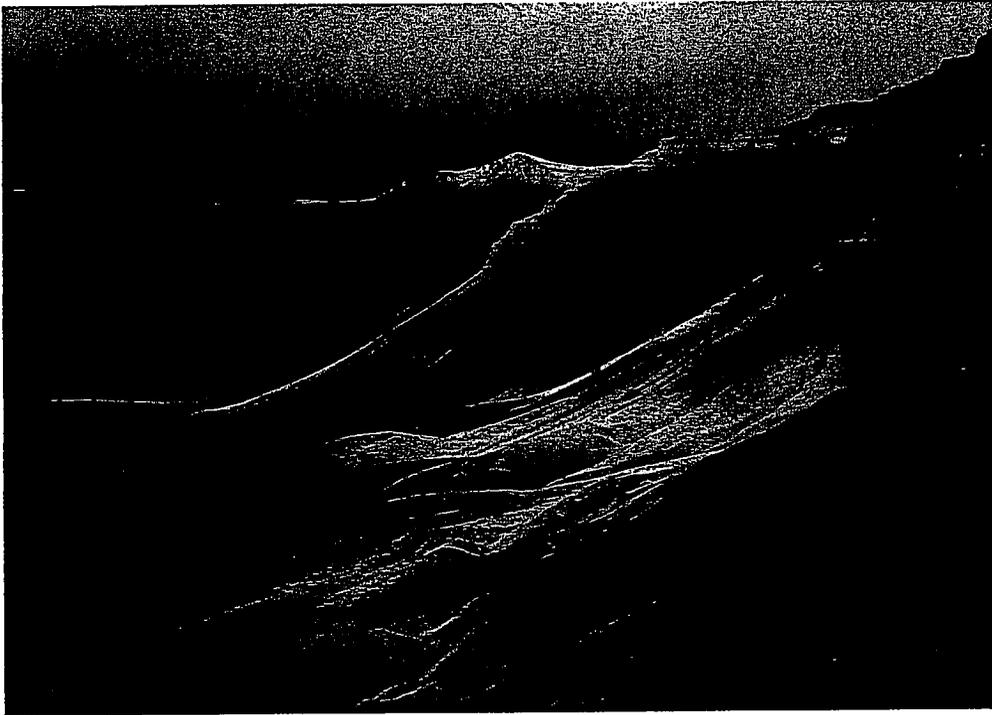
**IMNAHA RIVER CANYON, OREGON**

Photograph by Larry N. Olson

Our cover photograph shows the Imnaha River canyon, in Northeastern Oregon. This stunning landscape stretches from the headwaters of the Imnaha River, nestled in the highest peaks of the Wallowa Mountains, down to the bottom of Hells Canyon, where the Imnaha meets the Snake River. The entire run, including the south fork, is protected under the Wild and Scenic Rivers Act, which provides the most comprehensive protection accorded any U.S. River.

This image is included in *Oregon Rivers*, an exhibit-format book to be published by Westcliffe in the Fall of 1997. The book features color photographs by Larry N. Olson, depicting the fifty five wild and scenic rivers in Oregon, complimented with text written by John Daniel, essayist, poet, environmental journalist and winner of the 1993 Oregon Book Award for Creative Nonfiction. The primary focus of *Oregon Rivers* is to raise public awareness about the fragility of Oregon's protected rivers and their ecosystems, and of the need for continued vigilance if they are to be preserved.

Larry N. Olson has been a professional wilderness photographer for over twenty five years. His photographs have been published in *Sierra*, *Wilderness*, *The Nature Conservancy* and *Audubon*. Limited edition photographs, hand-printed by Larry, as well as prepublication copies of *Oregon Rivers*, are available from his studio. For more information, please call (503) 635-5288.



Imnaha River Canyon, Oregon

© Larry N. Olson





To Our Valued Customers:

Somewhere out there, working deep inside the basement lab of a pharmaceutical company's head office, are some chromatographers who have never heard of Optimize Technologies. These chemists still do things the old-fashioned way; they painstakingly rebuild check valves, they prime their HPLC pumps with priming valves that are best operated by people blessed with an extra hand, and worst of all they work long, long hours, and sometimes on weekends. These are the same chemists that have racks of samples lined up and ready for analysis, but can't get to them because they have to spend too much of their time on system maintenance; they're busy tweaking plumbing, diagnosing component failures, or waiting for a technician to show up.

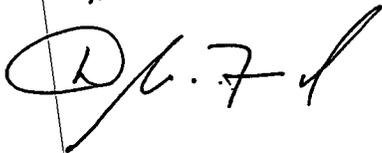
When I started Optimize Technologies 12 years ago, I had the chemists in that basement lab in mind; I knew there had to be a better way. At Optimize, we spend every day looking for better ways to bridge the gap between the chemistry and the equipment. Many of our products are born as a result of solving problems brought to us by customers like you. We strive to bring you the best possible value by providing responsive service and innovative products. When you install HPLC components from Optimize, you join a growing number of researchers who have discovered that when it comes to HPLC consumables, precision and quality have a tremendous impact on the performance and reliability of your HPLC system. By using only the best components available, you'll enjoy smoother, more reliable instrument performance between scheduled maintenance periods. That way, you get more time to concentrate on more important things, like your research (and your weekends!)

I once heard a customer describe Optimize as "the best kept secret in the HPLC industry." I think this description fits us very well, but not because we're trying to be clandestine. We don't spend a lot of money on advertising; we'd rather focus on the research and development of new products that will make your lab life easier, and get you home on time at the end of the day. Innovative products like OPTI-GUARD™ Guard Columns and OPTI-MAX® Cartridge Check Valves offer precision-machined solutions that save you time by performing reliably and minimizing problems related to component changeover. Apparently, Optimize is not as much of a secret as it used to be. Optimize components are being incorporated as original equipment on new HPLC systems from several manufacturers, and we've seen strong growth year after year as more and more chromatographers switch their systems to Optimize.

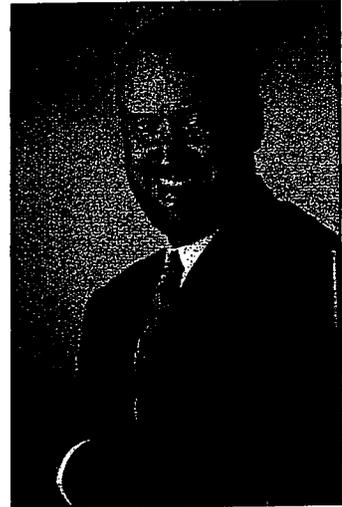
Things have changed a lot at Optimize in 12 years, but our mission remains the same: to design and manufacture the highest quality HPLC components and accessories available, and to stand behind them with responsive customer service and technical support, so that we may earn your business, and your trust. Let us know how we're doing — call us, send e-mail or visit our web page, and challenge us to find solutions to your unique HPLC liquid handling questions.

Thank you for your continued support and patronage.

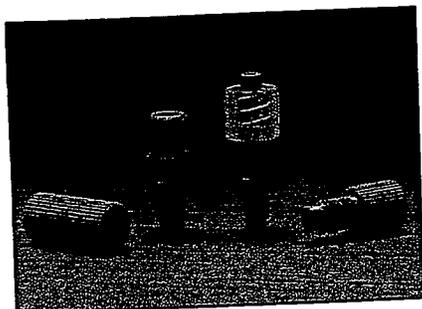
Sincerely,



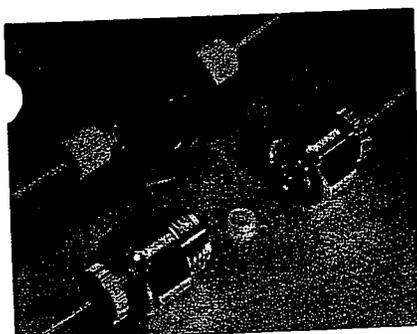
Douglas W. Ford  
President



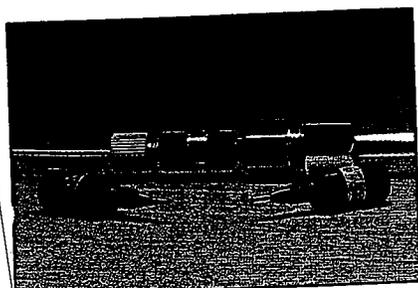
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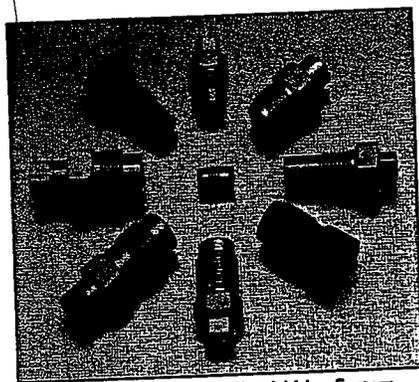
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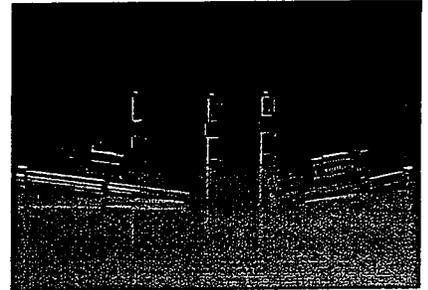
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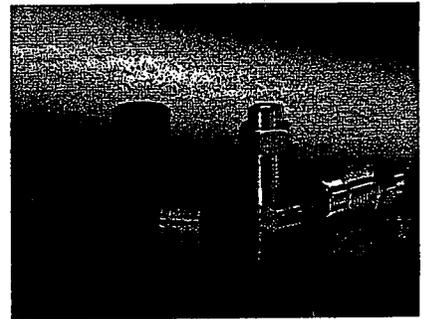
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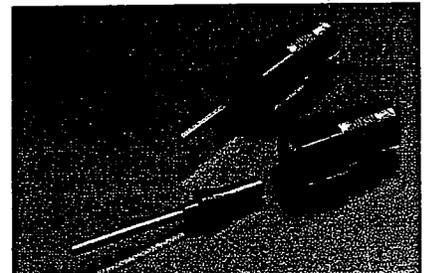
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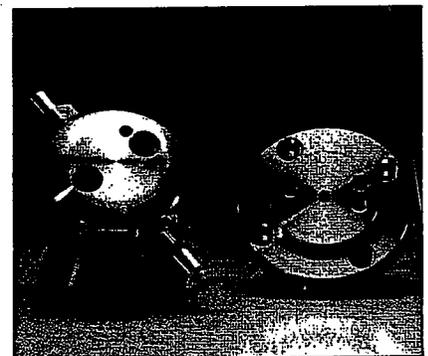
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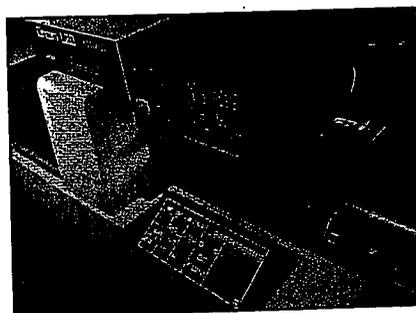


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# ABOUT OPTIMIZE



When Doug Ford founded Optimize Technologies, Inc. in 1985, his plan was to build a unique manufacturing company on a simple idea. Over a decade later, this idea is still the heart of our philosophy at Optimize: to offer the most finely made HPLC components available, and to stand behind them with the most responsive and effective customer service in the industry.

## Precision and Value By Design

Optimize HPLC components are used around the world by researchers who prefer to spend more time on their chromatography, and less time fixing their instruments. In your laboratory, time is an important factor. Time is fundamental to your chromatography; it is the axis along which mixtures of analytes are resolved. Time is also fundamental to a concept more fiscal than chemical: your bottom line. When an HPLC system is rendered inoperative by a maintenance problem, the opportunity cost of lost analysis time can add up very quickly, and can far exceed the cost of the parts that caused the problem to begin with.

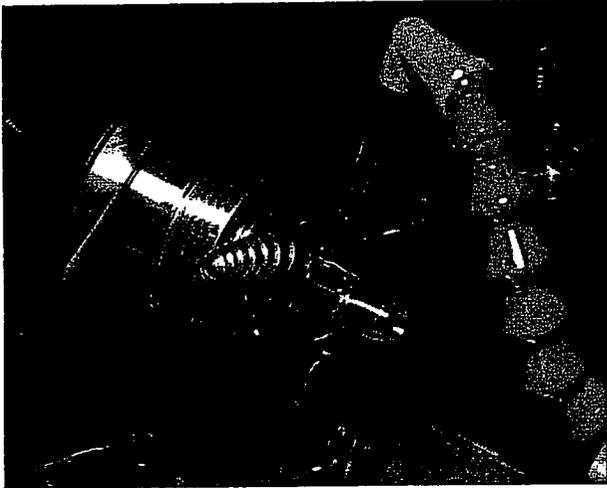
Each year, we hear from more and more scientists who have discovered the benefits of Optimize innovation. When it comes to spare parts, our customers know there is a difference: using HPLC components of superior quality and unsurpassed reliability means less time spent on instrument maintenance, and more time spent on what's really important — your research.

## Optimize R&D

At Optimize, we place a high priority on research and development. Our R&D team of engineers and chemists continually develops innovative solutions to fresh analytical challenges. New products are evaluated and thoroughly tested in our laboratory under a variety of operational conditions, to confirm that they meet our exacting standards for performance and reliability. Our goal is to ensure that the components you buy from Optimize work the first time, every time.

Optimize R&D benefits from a unique breadth of experience beyond the HPLC consumables market. We frequently partner with other firms such as pharmaceutical companies and instrument manufacturers to design and develop components and larger assemblies on an OEM basis. Our capacity for innovative design and custom manufacture allows us to engage in very productive and mutually beneficial partnerships with these companies.

# ABOUT OPTIMIZE



## Precision Machining

Only by individually machining each component we make can we achieve the tight tolerances, consistent threads and surface finishes that set our products apart. Everything from the smallest PEEK double-tight ferrule to a complete pump head assembly is precision-machined in a state-of-the-art manufacturing environment. Every polymeric fitting, ferrule and cartridge you buy from Optimize will be free of mold lines, thread inconsistencies and other problems associated with mold-based production techniques.

## Quality Control: One Part at a Time

From conception to manufacture, our entire product development cycle is geared toward production of the most reliable and well-made components available. Quality control is a vital step in this cycle. Our Statistical Process Control (SPC) system enables us to closely monitor the quality of our manufacturing process. By continual analysis of manufacturing trends while the parts are in process, part-to-part variation can be minimized. When it comes to quality, there are no shortcuts: every part we manufacture is guaranteed to meet the standards of reliability and performance you can always expect from Optimize.

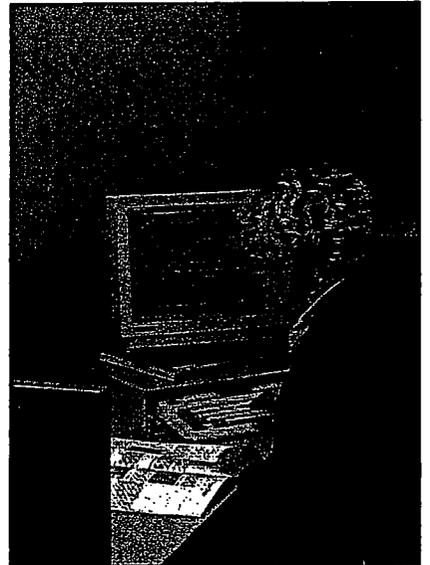
## How Can We Help You?

At Optimize, customer service is not a department — it's our business. Our integrated team of engineers, chemists, machinists, quality assurance professionals and technical support specialists work together to answer your tough questions and to help you meet your analytical challenges. Need a part number, a price or a new catalog? Call customer service at 800-669-9015. Have a problem with a particular application, a maintenance question, or need solvent compatibility information? Ask for a technical support specialist. Whether you are an end-user or a purchasing agent, support professionals are ready to help you with informative product advice, and fast order entry.

Optimize also offers HPLC maintenance training seminars both in the U.S. and worldwide. Seminar topics include periodic maintenance and system optimization, and can be individually tailored to audience needs. Call for more details about a seminar near you.

## Our Guarantee

HPLC components from Optimize are the highest quality accessories of their type you can buy, and we guarantee it. Each component we make is designed to meet or exceed original equipment specifications, and carries the hallmark of Optimize machining quality. Every Optimize product we sell must meet these criteria, and every product carries our full guarantee of satisfaction.



ABOUT OPTIMIZE

# SOLVENT COMPATIBILITY GUIDE

HPLC components and accessories from Optimize are manufactured using the materials listed in this solvent compatibility chart. Each material earns a solvent compatibility grade of A or B, based on that material's resistance to chemical attack. Grade A materials are completely resistant to common HPLC solvents and reagents, while Grade B materials are susceptible to chemical attack under certain conditions. Specific cautionary information is provided for all grade B materials. For more information on compatibility for a specific solvent, please call our Technical Support Department at 800-669-9015.

SOLVENT COMPATIBILITY CHART

Acetal (Delrin®)	B	Do not use with strong acids, strong bases, or oxidizing agents.
Ceramic	A	
Chemraz	A	
Hastelloy C®	B	Aqueous acidic chlorides will cause pitting.
Kalrez	A	
Kel-F® (CPE)	B	Use caution with HF and halogenated solvents.
Nylon	B	Attacked by strong acids, oxidizing agents, phenols, and concentrated solutions of certain salts.
OS-101™ (UHMW PE)	B	Avoid using with strong oxidizing agents.
PEEK (Polyetheretherketone)	B	Avoid Hydrobromic Acid (20-30%), concentrated sulfuric or Nitric acids. Use caution with Dichloromethane & HF.
Perfluc	A	
Polypropylene (PP)	B	Do not use with strong oxidizing agents.
Ruby	A	
Rulon	A	
Sapphire	A	
Stainless Steel 316	B	Aqueous acidic chlorides will cause pitting.
Techtron® (PPS)	A	
Teflon® (PTFE)	A	
Teflon® (FEP)	A	
Tefzo® (ETFE)	A	
Titanium (Ti)	B	Aqueous acidic chlorides will cause pitting.
Viton®	B	Attacked by strong bases and certain organic solvents.

This information is current and to date, and is presented as a general guide to solvent compatibility. It is presented without any guarantee, liability or warranty of any kind, neither expressed nor implied.

# TRADEMARKS

HPLC FIRST AID KIT(S)<sup>™</sup>, ITB-12<sup>™</sup>, OPTI-DRAW<sup>™</sup>, OPTI-GUARD<sup>™</sup>, OPTI-LOK<sup>™</sup>, OPTI-PEEK<sup>™</sup>, OPTI-PRIME<sup>™</sup>, OPTI-SOLV<sup>™</sup>, OS-10.1<sup>™</sup>, Optimize Technologies<sup>™</sup>, the Optimize Technologies Raindrop Logo, FREE-TURN<sup>™</sup> and the Free-Turn Arrow Logo are Trademarks of Optimize Technologies, Inc.

The OPTI<sup>®</sup>- prefix, OPTI-MAX<sup>®</sup> and OPTI-SEAL<sup>®</sup> are Registered Trademarks of Optimize Technologies, Inc.

#### Patented Optimize Products:

OPTI-GUARD <sup>™</sup> 1mm & 3mm Guard Columns	U.S. Pat. No. 5,525,303
OPTI-LOK <sup>™</sup> Adjustable Adapter	U.S. Pat. No. 5,525,303
OPTI-SOLV <sup>™</sup> Mini Filter	U.S. Pat. No. 5,525,303
OPTI-PRIME <sup>™</sup> Priming Valve	U.S. Pat. No. 5,616,300

Kromasil<sup>™</sup> is a Trademark of Eka-Nobel.

Rulon<sup>™</sup> is a Trademark of Dixon Industries.

Delta Prep<sup>™</sup> and WISP<sup>™</sup> are Trademarks of Waters Corporation.

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Chemraz<sup>®</sup> is a Registered Trademark of Greene, Tweed & Co.

Delrin<sup>®</sup>, Kalrez<sup>®</sup>, Teflon<sup>®</sup>, Tefzel<sup>®</sup>, and Viton<sup>®</sup> are Registered Trademarks of E.I. du Pont de Nemours & Co.

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Kel-F<sup>®</sup> is a Registered Trademark of the 3M Company.

LaChrom<sup>®</sup> is a Registered Trademark of the Merck Hitachi Company.

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# REFERENCE

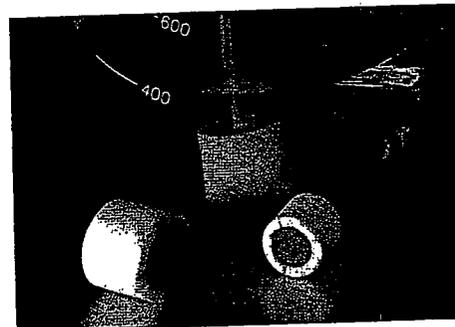
## Filtration: A Systematic Approach

FILTRATION

Obtaining reliable, consistent results from your HPLC system requires continuous consideration of chemical and mechanical factors that can negatively impact system performance. For your laboratory to remain competitive, instrument down-time must be kept to an absolute minimum. Many common instrument problems are caused by the presence of particulate contamination introduced by the mobile phase or as a by-product of system operation. Particulates can cause a variety of maintenance headaches, including check valve failure, excessive wear of the piston and seal, and high back-pressure due to frit blockage. A consistent, holistic approach to filtration is an effective means of minimizing particulates in your flow path. It is also a vital precaution that will keep your chromatograph working for you (and not the other way around).

### Mobile Phase

The first and perhaps easiest place to prevent particulate contamination is in the mobile phase. Buffer salts, improperly cleaned glassware, microbial contamination and inadequate pre-filtering procedures are all potential sources of particulates. Solvent manufacturers adequately filter HPLC-grade solvents prior to bottling; ideally, there should be no need for additional pre-filtering in your laboratory if your mobile phase contains only HPLC-grade solvents. Mobile phases prepared with buffer salts or other solid reagents should be filtered prior to use, however. A 0.2 or 0.45  $\mu\text{m}$  membrane filter is recommended for this filtration step. It is also a good idea to discard the first few milliliters of solvent that pass through the filter.



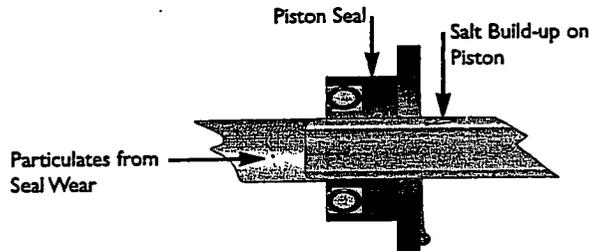
Solvent reservoir filters are a useful filtration accessory, providing a first line of protection as the solvent enters the system. OPTI-SOLV™ Solvent Reservoir Filters (page 14) are an excellent choice for this application; OPTI-SOLV secures your inlet tubing at the bottom of the solvent reservoir without the use of tools or fittings, and is machined from PTFE and Titanium. This well-swept filter ensures access to all but the last few milliliters of solvent, and will not trap bubbles or leach extractable contaminants. Solvent reservoir filters are available with a choice of frit porosities. For analytical HPLC applications, a 2  $\mu\text{m}$  frit is the best choice, while a larger porosity frit such as 10  $\mu\text{m}$  should be selected for flow rates exceeding 10 mL/min.

### Piston Seals

Piston seals are a common source of particulate contamination in the flow stream. As the piston moves back and forth through the piston seal at high pressure, seal fragments can slough off from the mating surface of the seal. The size and shape of shed particles will vary depending upon the nature and quality of the material from which the seal is made. These variables are important to consider, as they directly impact the ease with which shedding particles can be removed from the flow path. Particles too small to be trapped by a 2  $\mu\text{m}$  filter, or large enough to be trapped within the frit but below the surface, will cause the most trouble.

The exclusive polymer blends used in our ITB™ and OPTI-SEAL® piston seals are specifically formulated to shed particles large enough to be trapped at the surface of a 2  $\mu\text{m}$  frit. Because particulates in the pump head can cause increased friction and abrasion between the piston and seal, excessive seal wear is both a source and a symptom of particulate contamination.

The build up of precipitated salts and other particulates within the pump can be minimized by regular flushing with non-buffered mobile phase. Some pumps include a piston flushing utility that allows the piston to be rinsed on the low pressure side of the seal while the pump is in use. Daily piston flushing can help prevent salt precipitation on the surface of the piston and can prolong the life of both the piston and piston seal.



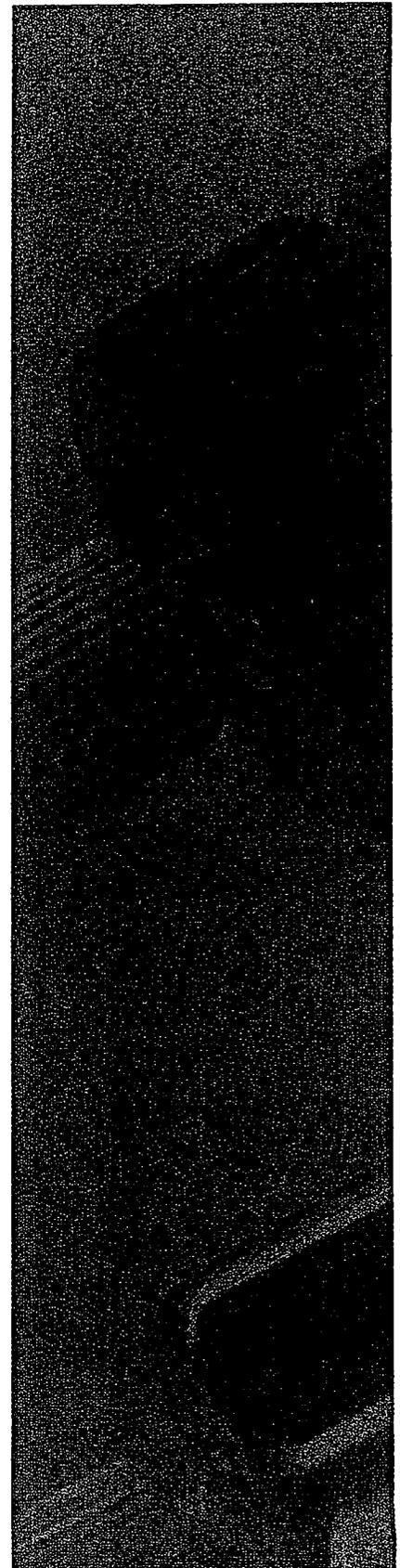
For most effective protection from seal shedding particulates, we recommend the use of an in-line filter installed downstream from the pressure transducer but prior to the injection valve or autosampler. OPTI-SOLV In-Line Filters (page 12) are a convenient and cost-effective solution for most in-line filtering applications, providing rapid access to replaceable frits without requiring disconnection of attached tubing.

Some instrument manufacturers supply check valve assemblies equipped with a filter element on the outlet side. While a filter frit in this location may seem to be a better option than no filter at all, this arrangement can be problematic. First, the use of an in-line filter upstream of the pressure transducer complicates pressure-based diagnosis of instrument performance. Second, placement of a frit this close to the outlet check valve causes particulates to build up in a location where they are likely to cause the problems. Check valve failure is often brought on by the adherence of contaminants to the surface of the ball, causing it to stick or seal improperly. In-line filtration of seal debris and other particulates downstream from the pressure transducer will minimize the chance of check valve contamination and will not complicate system diagnostics.

## Precolumn Filtration

Two more potential sources of particulate contamination can cause trouble in the region beyond the injection device but before the analytical column. First, the injection device itself can introduce particles resulting from rotor seal wear or the coring of vial septa. Second, contamination may be introduced by the sample matrix. The analytical column can be damaged by irreversibly retained contaminants in the sample matrix, or by salts that precipitate due to incompatibilities between the sample matrix and mobile phase.

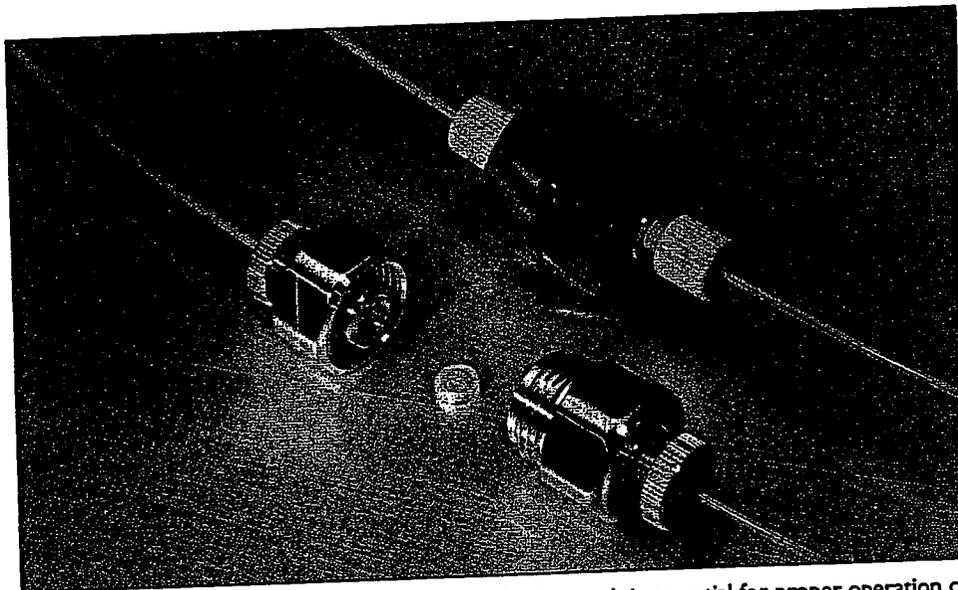
Where practical, most of these types of contamination can be addressed in the sample preparation procedure. In cases where additional filtration is required between the injector and column, a low-volume, low-dispersion filter and/or guard column must be employed. OPTI-SOLV Mini Filters (page 13) and OPTI-GUARD™ Guard Columns (pages 32-33) work extremely well for applications requiring precolumn protection. Our patented, automatically adjusting tube stem design assures zero-dead-volume connections and low dispersion in an area where excessive dead volume can literally make or break your assay.



FILTRATION

# OPTI-SOLV™ IN-LINE FILTER

FILTRATION



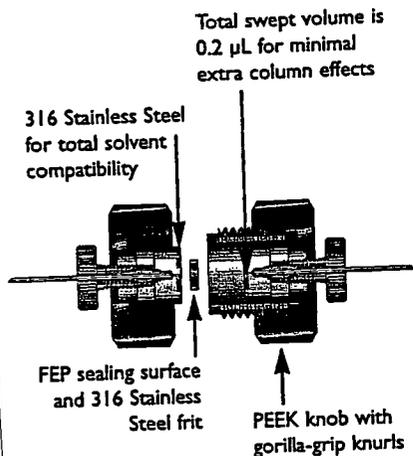
In HPLC, the removal of particulate matter from the flow path is essential for proper operation of the instrument, and for protection of vital and expensive components. The OPTI-SOLV™ In-Line Solvent Filter was designed to protect your HPLC system from foreign particles, helping you to minimize system down-time and operating costs. An OPTI-SOLV In-Line Filter installed between the pump and injection valve or autosampler can protect these expensive components from seal wear particles and other debris. The OPTI-SOLV features a unique swivel design that allows access to the filter compartment without removal of the connecting tubing; once the tubing and fittings are connected to the stainless steel inserts, there is no need to remove them again. Holders constructed from PEEK are hand-tightened, making frit changes a snap.

## OPTI-SOLV™ In-Line Solvent Filter

OPTI-Part #	Description	Price
10-04-00387	0.5 µm SS Wrench-Tight	
10-04-00388	0.5 µm PEEK Hand-Tight	
10-04-00390	2 µm SS Wrench-Tight	
10-04-00391	2 µm PEEK Hand-Tight	

All of the above include holder, fittings and 2 filter elements.

10-04-00400	0.5 µm Replacement Frits (10/PK)
10-04-00401	2 µm Replacement Frits (10/PK)



### FEATURES

- Use with any HPLC system.
- Hand-tight PEEK holder.
- Wrench-tight SS holder.
- Inserts are designed to allow for different filter thicknesses.
- Swivel insert allows tubing to remain connected during filter replacement.

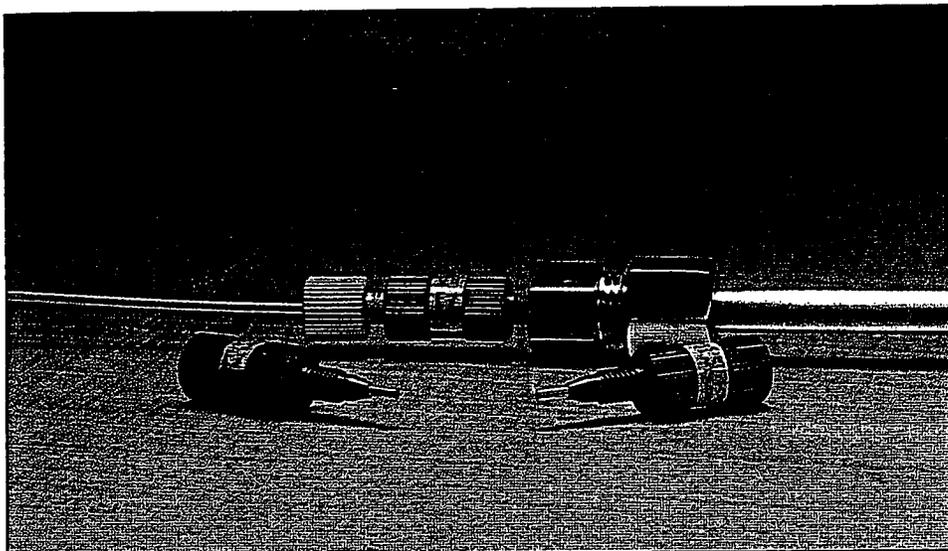
### SPECIFICATIONS

- Outside dimensions: 1" diameter x 1 1/4" long.
- 0.10" diameter through-hole, 0.2 µL flow-through volume.
- 10-32 Parker-style female port.
- 6,000 psi pressure rated.
- Available in 0.5 µm and 2 µm porosities.

### MATERIALS

- 316 Stainless Steel
- PEEK
- Teflon®

# OPTI-SOLV™ MINI FILTER



The OPTI-SOLV™ Mini Filter is a hand-tight, automatically adjustable in-line filter that can extend the life of your analytical column. It can be used anywhere between the pump and detector to catch particulates, or can replace your guard column. Perfect zero-dead-volume connections are obtained every time thanks to our patented automatic tube-stop depth adjustment. Depth filtering elements allow for exceptionally large throughput with no band spreading or loss in performance. OPTI-SOLV is the completely disposable, holder-free solution to your filtering needs.

## OPTI-SOLV™ Mini Filter

OPTI-Part #	Description	Color	Price
16-04-30015	OPTI-SOLV™ Mini Filter 0.2 micron 5 µm PEEK	Yellow	
16-04-30017	OPTI-SOLV™ Mini Filter 0.2 micron 2 µm PEEK	Yellow	

### FEATURES

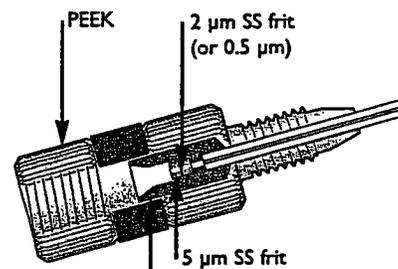
- No holder needed.
- No band spreading.
- Compatible with any 10-32 column.
- Patented 2-piece design automatically adjusts to fit all brands of columns and allows perfect zero-dead-volume connections.
- Completely disposable.
- Depth filtration design.

### SPECIFICATIONS

- Overall dimensions: 3/8" diameter x 1" long.
- 0.10" through-hole.
- Less than 1.5 µL internal flow-through volume.
- 6,000 psi pressure rated.
- Compatible with all 10-32 female ports (except Rheodyne injector port).
- Depth Filtration Design.

### MATERIALS

- PEEK
- 316 Stainless Steel

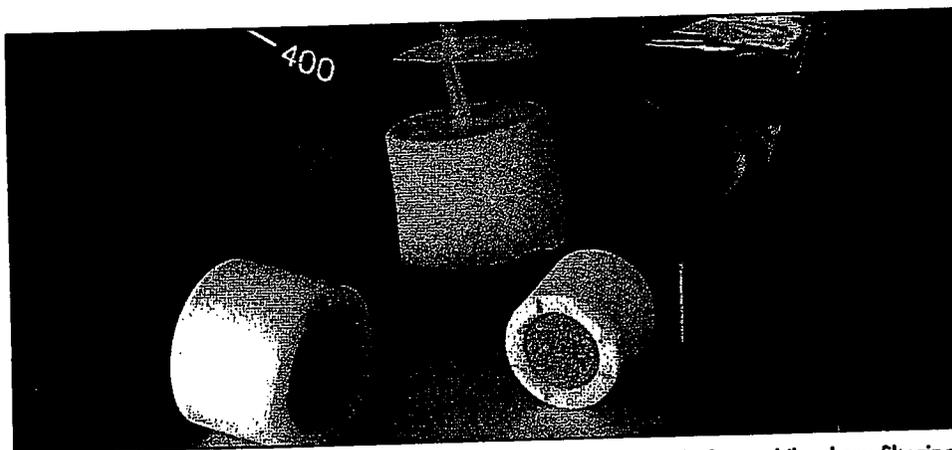


2-piece design automatically adjusts to fit all brands of columns

U.S. PATENT NO. 5,525,303

FILTRATION

# SOLVENT RESERVOIR FILTERS



## FEATURES

- Easy to install - requires no tools or fittings.
- Teflon® and Titanium ensure inert environment.
- Purges quickly and completely.
- Offers smooth flow path, preventing trapped bubbles that can cause pump cavitation.
- Cost-efficient, as all mobile phase can be drawn from the solvent reservoir bottle.

## SPECIFICATIONS

- 2 and 10 micron analytical and preparatory filters for 1/16", 1/8" and 3/16" OD tubing.
- 1/16" analytical filter fits a 1 liter solvent bottle that has an inside neck diameter of at least 3/4".
- Preparatory filter gives a larger surface area and is intended for all 4 liter solvent bottles with an inside neck diameter of at least 1".
- 10 µm porosity is required when flow rates exceed 10 mL/min. 2 µm filter is for most analytical applications.

## MATERIALS

- Teflon
- Titanium frit

The OPTI-SOLV™ Solvent Reservoir Filter is the finest filter available for mobile phase filtering. The unique design requires no assembly or fittings for installation, and remains at the bottom of the solvent bottle while allowing unrestricted solvent access. You won't have to force your inlet tubing over a stem — simply insert the tubing into the Teflon® housing until it bottoms out. A unique conical internal flowpath assures that all air is readily purged from the filter and housing.

## OPTI-SOLV™ Solvent Reservoir Filter

### Analytical Filters for 1/16" OD Tubing

OPTI-Part #	Description	Price
10-04-00079	2 micron	
10-04-00080	2 micron, 5/Pk	
10-04-00081	10 micron	
10-04-00082	10 micron, 5/Pk	

### Analytical Filters for 1/8" OD Tubing

10-04-00047	2 micron	
10-04-00050	2 micron, 5/Pk	
10-04-00051	10 micron	
10-04-00053	10 micron, 5/Pk	

### Analytical Filters for 3/16" OD Tubing (Waters Style)

10-04-00054	2 micron	
10-04-00056	2 micron, 5/Pk	
10-04-00057	10 micron	
10-04-00058	10 micron, 5/Pk	

### Preparatory Filters for 1/8" OD Tubing

10-04-00059	2 micron	
10-04-00062	2 micron, 5/Pk	
10-04-00063	10 micron	
10-04-00065	10 micron, 5/Pk	

### Preparatory Filters for 3/16" OD Tubing (Waters Style)

10-04-00066	2 micron	
10-04-00068	2 micron, 5/Pk	
10-04-00069	10 micron	
10-04-00070	10 micron, 5/Pk	

OPTIMIZE TECHNOLOGIES For Technical Support Call 800-669-9015

# SOLVENT RESERVOIR FILTERS

We took the convenient design you have come to expect from OPTI-SOLV™ and applied it to traditional solvent reservoir filters. These provide a simple connection with no tube restriction. Insert the tubing into the opening and drop the filter into the solvent reservoir. All filters are made of Hastelloy C® for maximum corrosion resistance and inertness. Each is available for 1/16", 1/8" or 3/16" OD tubing.

## Female Solvent Reservoir Filter

For 1/16" OD Tubing

OPTI-Part #	Description	Price
10-04-00075	2 micron	
10-04-00076	2 micron, 5/Pk	
10-04-00077	10 micron	
10-04-00078	10 micron, 5/Pk	

For 1/8" OD Tubing

10-04-00037	2 micron	
10-04-00039	2 micron, 5/Pk	
10-04-00040	10 micron	
10-04-00041	10 micron, 5/Pk	

For 3/16" OD Tubing (Waters Style)

10-04-00042	2 micron	
10-04-00044	2 micron, 5/Pk	
10-04-00045	10 micron	
10-04-00046	10 micron, 5/Pk	

Optimize Solvent Reservoir Filters with tube stem are made of Hastelloy C for maximum corrosion resistance and inertness. The filter with a 1/8" stem is an improved version of the Waters filter, and is directly interchangeable. The filter with a 1/16" stem may be used for most other HPLC systems. For extended flow systems, and where flow rates exceed 10 mL/minute, a 10 micron filter is required. For most analytical applications, the 2 micron filter is preferable.

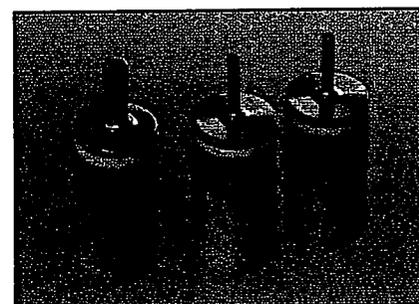
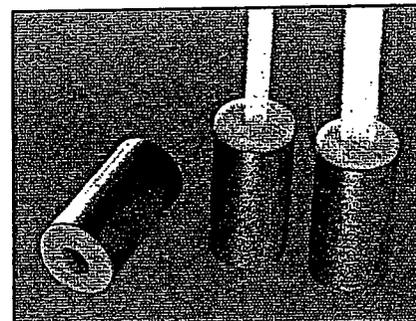
## Solvent Reservoir Filters with Tube Stem

For 1/16" ID Tubing

OPTI-Part #	Description	Price
10-04-00071	2 micron	
10-04-00072	2 micron, 5/Pk	
10-04-00073	10 micron	
10-04-00074	10 micron, 5/Pk	

For 1/8" ID Tubing (Waters Style)

10-04-00115	2 micron	
10-04-00119	2 micron, 5/Pk	
10-04-00111	10 micron	
10-04-00114	10 micron, 5/Pk	



FILTRATION

# FITTINGS & ADAPTERS

Optimize manufactures a comprehensive selection of fittings, unions, adapters and plugs designed for maximum precision and longevity, and minimal dispersion. All of our fittings, from tees and crosses to the smallest double-tight ferrule, are precision-machined exclusively from inert materials. Machined fittings from Optimize are superior to fittings produced using mold-based techniques, as they offer greater concentricity, better consistency in wall thickness and thread profile, greater resistance to breaks, and surface finishes that are free of mold-lines.

Use Optimize fittings for critical connections between the components in your HPLC system, and discover the difference precision can make.

## OPTI-LOK™ Adjustable Adapters

OPTI-LOK Adjustable Adapters from Optimize enable you to make zero-dead-volume connections between any 1/4-28 or M6 male fitting and any 10-32 female port. Using a patented two-piece design, OPTI-LOK Adjustable Adapters automatically adjust to fit virtually any manufacturer's standard tube-stop depth (see page 17).

## OPTI-LOK™ Adapters

We also offer a useful selection of adapters for making connections between 1/4-28, M6 (Metric), Luer or 10-32 fittings. Use the charts on pages 18-19 to find the correct adapter for your application, or call our Technical Support Department if you do not see the adapter you require.

## High Pressure Fittings

We offer a complete line of precision-manufactured 10-32 and M6 fittings, unions, crosses and tees for making high-pressure connections. OPTI-LOK 6K fittings feature a separate nut and double-tight ferrule, for increased gripping power and secure sealing. For precision connections with integrated nut/ferrule fittings, choose OPTI-LOK I (see page 20).

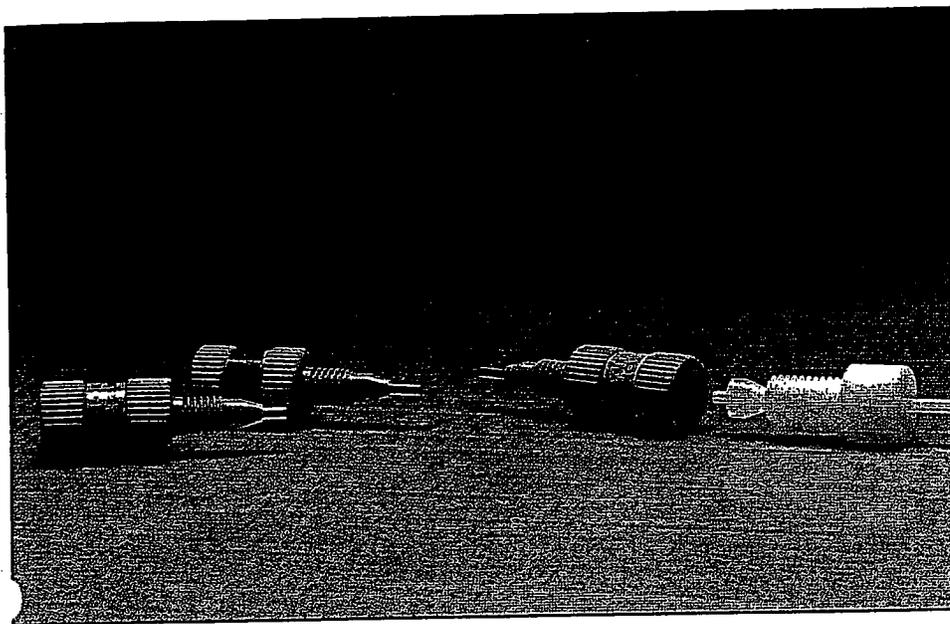
## Low Pressure Fittings

For reliable low-pressure connections, OPTI-LOK LP fittings are an excellent choice. With OPTI-LOK LP, you can connect 1/8" and 1/16" OD tubing into flat-bottomed 1/4-28 ports without the need for flanged tube-ends (see page 22).

## Custom Manufacturing

If you have a special need for a fitting or other connection accessory not listed in this catalog, let us know. Because we individually machine each fitting we sell, we can custom-manufacture small batches of components at a competitive price. For more information or a price quotation, call Technical Support at 800-669-9015.

# ADJUSTABLE ADAPTER



The OPTI-LOK™ Adjustable Adapter will connect any 1/4-28 male fitting to a 10-32 threaded female component. OPTI-LOK is also available for M6 male fitting to 10-32 threaded female port connections.

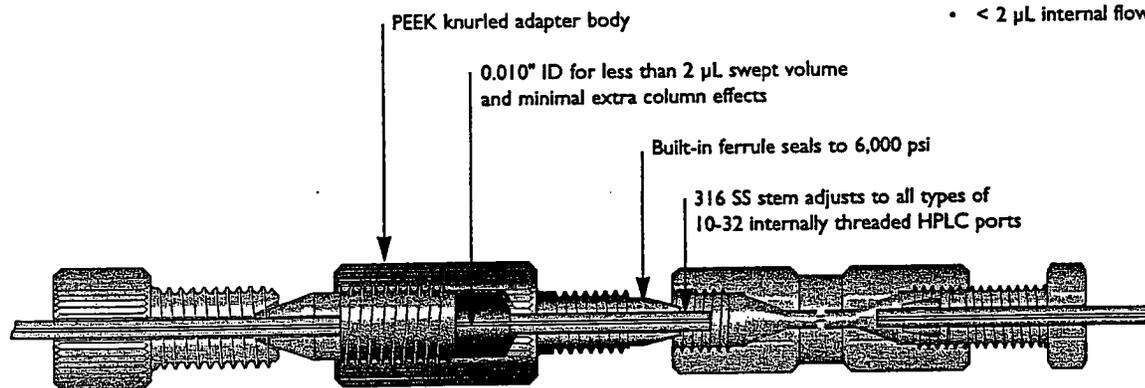
Our unique patented 2-piece design allows the adapter to adjust to virtually any manufacturer's tube stop depth. Simply hand-tighten to provide a perfect zero-dead-volume connection. This adapter is particularly well suited for connecting conventional HPLC columns to systems with polymeric tubing and flanged fittings, such as Pharmacia and Dionex. Reduce your adapter inventory with the OPTI-LOK Adjustable Adapter from Optimize.

## OPTI-LOK™ Adjustable Adapter

OPTI-Part #	Description	Price
10-25-00250	1/4-28 male to 10-32 female 2/Pk	
10-25-00389	M6 male to 10-32 female 2/Pk	

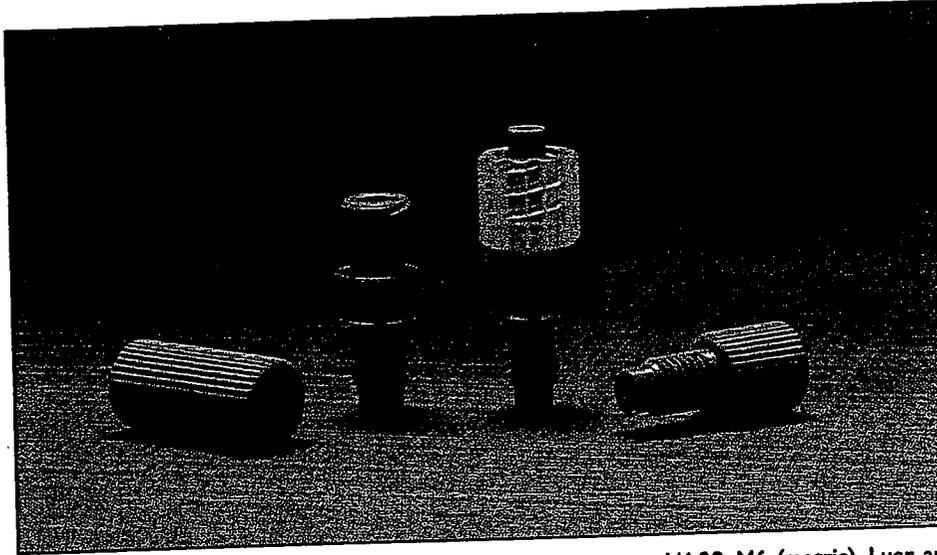
## FEATURES

- Overall dimensions: 3/8" diameter x 1 1/4" long.
- 6,000 psi pressure rated.
- 0.010" diameter through-hole.
- < 2 µL internal flow-through volume.



U.S. PATENT NO. 5,525,303

# ADAPTERS



OPTI-LOK™ Adapters offer maximum flexibility for making connections between your 1/4-28, M6 (metric), Luer and 10-32 fittings. They are available in a useful variety of thread-type combinations, all precision-machined from PEEK or stainless steel (SS). Only by individually machining each component can we produce the consistently precise and durable threads that you will find in every fitting, ferrule and adapter we offer. If you can't find the adapter you need in this catalog, please call us. We often produce and stock other adapters that may not be listed here, and we can also custom-manufacture adapters for your particular application.

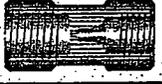
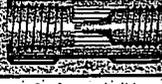
FITTINGS & ADAPTERS

## OPTI-LOK™ Adapters

OPTI-Part #	Wetted Material	Adapts From	Adapter	To	Price
10-23-00350	PEEK	1/4-28 Female		10-32 Parker Style Male	
10-23-00352	PEEK	1/4-28 Female		Luer Female	
10-23-00353	PEEK	1/4-28 Female		Luer Male	
10-23-00351	PEEK	1/4-28 Female		M6 Male	
10-23-00347	PEEK	1/4-28 Male		Luer Female	
10-23-00349	PEEK	1/4-28 Male		Luer Male	

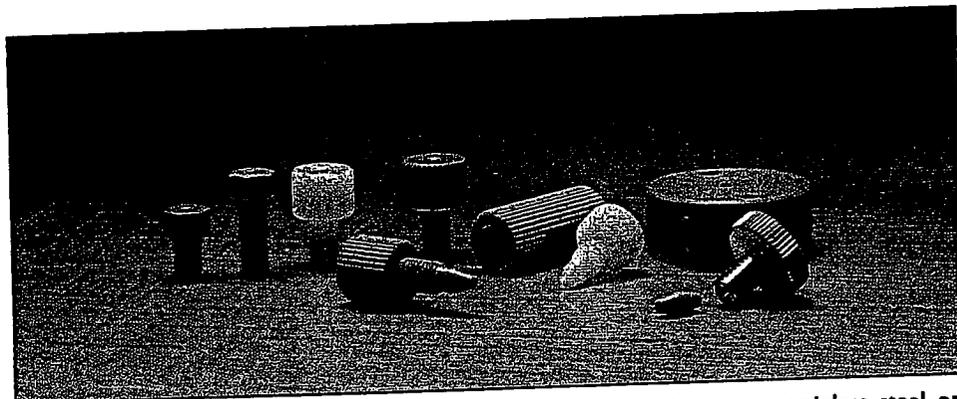
# ADAPTERS

## OPTI-LOK™ Adapters

OPTI-Part #	Wetted Material	Adapts From	Adapter	To	Price
10-23-00346	PEEK	1/4-28 Male		M6 Male (with web)	
10-23-00335	PEEK	1/4-28 Male		10-32 Parker Style Male	
10-23-00345	SS	1/4-28 Male		10-32 Parker Style Male	
10-23-00357	PEEK	M6 Female		10-32 Parker Style Male	
10-23-00366	PEEK	M6 Female		Luer Female	
10-23-00355	PEEK	M6 Male		10-32 Parker Style Male	
10-23-00354	SS	M6 Male		10-32 Parker Style Male	
10-23-00356	SS	M6 Male		10-32 Waters Style Male	
10-23-00361	PEEK	M6 Male		Luer Female	
10-23-00363	PEEK	M6 Male		Luer Male	
10-23-00358	PEEK	10-32 Parker Style Male		Luer Male	
10-23-00359	PEEK	10-32 Parker Style Male		Luer Female	
10-23-00364	PEEK	10-32 Parker Style Male		1/4-28 Male Cone	
10-23-00365	SS	10-32 Parker Style Male		1/4-28 Male Cone	

FITTINGS & ADAPTERS

# FITTINGS



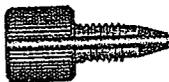
OPTI-LOK™ 6K fittings are ideal for connecting 1/16" OD tubing to any stainless steel or polymeric 10-32 threaded port. For biocompatible applications, use OPTI-LOK 6K PEEK fittings and OPTI-PEEK™ tubing for completely inert high-pressure connections.

OPTI-LOK 10-32 couplers allow convenient connections between female 10-32 ports. These couplers consist of two OPTI-LOK 1 fittings and a 6 cm stainless steel tube (.006" ID) Internal volume is only 1.4 µL, making OPTI-LOK couplers ideal for connections between filters, guard columns and analytical columns.

OPTI-LOK unions are well-suited for connecting 10-32 threaded fittings with stainless steel or polymeric tubing. Tees and crosses from Optimize are precision-machined from PEEK, and are available in two different through-hole sizes. OPTI-LOK plugs in PEEK or Acetal offer a low-profile design and will firmly seal 10-32 threaded female ports.

## High Pressure Fittings & Plugs for 1/16" Tubing

### OPTI-LOK™ 1 10-32 Hand-Tight Fittings with Integral Ferrule



OPTI-Part #	Description	Price
10-20-00256	OPTI-LOK 1 Kc/P	
10-20-00257	OPTI-LOK 1 Kc/P 10/Pk	
10-20-00264	OPTI-LOK 1 PEEK	
10-20-00265	OPTI-LOK 1 PEEK 10/Pk	

### OPTI-LOK™ 6K 10-32 Nuts & Ferrules

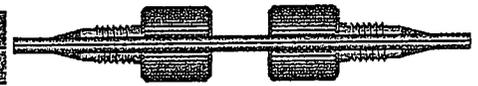


OPTI-Part #	Description	Price
10-20-00268	Nut, Knurled Head, PEEK	
10-20-00270	Nut, Knurled Head, PEEK w/ Ferrule (10-20-00269) 10/Pk	
10-20-00271	Nut, Hex Head, Short, PEEK	
10-20-00272	Nut, Hex Head, Short, PEEK w/ Ferrule (10-20-00269) 10/Pk	
10-20-00275	Nut, Hex Head, Long, PEEK	
10-20-00276	Nut, Hex Head, Long, PEEK w/ Ferrule (10-20-00269) 10/Pk	
10-20-00277	Nut, White Acetal, Knurled	
10-20-00278	Nut, White Acetal w/ PEEK Ferrule (10-20-00269) 10/Pk	
10-20-00279	Nut, Knurled Head, SS	
10-20-00274	Nut, Knurled Head, SS w/ PEEK Ferrule (10-20-00269) 10/Pk	
10-20-00269	6K Double Tight Ferrule, PEEK	

# FITTINGS

## 10-32 Couplers with 1/16" OD x .006" ID x 6 cm SS Tubing

OPTI-Part #	Description	Price
10-20-00263	Coupler-PEEK	
10-20-00266	Coupler-PEEK	



## Universal 10-32 Nuts & Ferrules For 1/16" OD Tubing

OPTI-Part #	Description	Price
10-24-00367	Universal Nut-SS	
10-24-00376	Universal Nut-SS w/ Ferrule 10-24-00369-10/Pk	
10-24-00369	Ferrule-SS	
10-24-00375	Ferrule-PEEK	



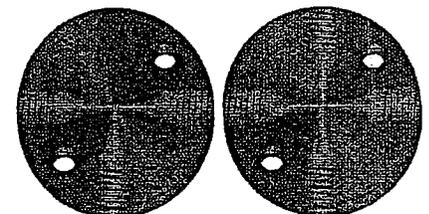
## 10-32 Unions For 1/16" OD Tubing

OPTI-Part #	Description	Price
10-20-00261	Union-PEEK-0.010" thru	
10-20-00262	Union-PEEK-0.020" thru	
10-20-00267	Union-PEEK-0.050" thru	
10-24-00377	Union-SS-0.010" thru	
10-24-00378	Union-SS-0.020" thru	
10-24-00379	Union-SS-0.050" thru	



## 10-32 Tees & Crosses For 1/16" OD Tubing

OPTI-Part #	Description	Price
10-20-00287	Tee-PEEK-0.020" thru	
10-20-00288	Tee-PEEK-0.050" thru	
10-20-00304	Cross-PEEK-0.020" thru	
10-20-00370	Cross-SS-PEEK-0.050" thru	

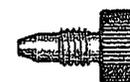


TEE

CROSS

## 10-32 OPTI-LOK™ Plugs

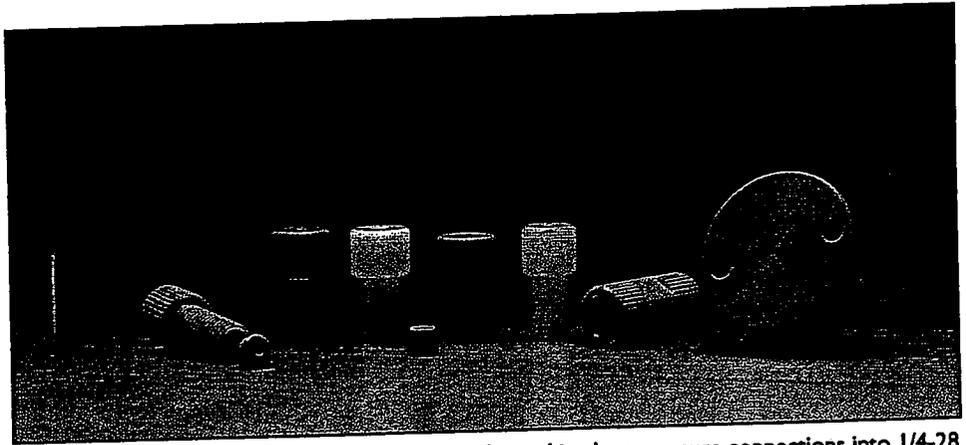
OPTI-Part #	Description	Price
10-20-00251	Plug-White Acetal	
10-20-00253	Plug-White Acetal-10/Pk	
10-20-00252	Plug-Black Acetal	
10-20-00254	Plug-Black Acetal-10/Pk	
10-20-00255	Plug-Natural PEEK	
10-20-00256	Plug-Natural PEEK-10/Pk	



High Pressure Fittings for LDC, Parker, SSI, Valco, & Waters can be found on pages 24-25.

FITTINGS & ADAPTERS

# FITTINGS



OPTI-LOK™ LP Fittings are an excellent choice for making low-pressure connections into 1/4-28 ports. Connections to flat-bottomed ports can be made using OPTI-LOK flat-bottomed ferrules for 1/16" or 1/8" tubing, without the need for pre-flanged tubing ends. OPTI-LOK LP fittings are precision-machined to deliver leak-free, zero-dead-volume connections every time.

## Low Pressure Flat-Bottomed Fittings & Plugs

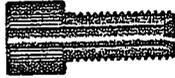
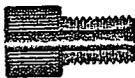
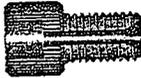
### OPTI-LOK™ LP 1/4-28 Nuts & Ferrules For 1/16" OD Tubing

OPTI-Part #	Description	Price
10-21-00290	Nut, Natural PEEK	
10-21-00289	Nut, Black Acetal	
10-21-00293	Nut, White Acetal	
10-21-00294	Nut, White Acetal, w/ Counterbore	
10-21-00292	Nut, Natural Tefzel	
10-21-00299	Nut, Teflon (PTFE)	
10-21-00291	Nut, Natural PEEK, Long	
10-21-00298	Nut, Hex Head, Nylon	
10-21-00296	Ferrule, Natural PEEK	
10-21-00302	Ferrule, Black PEEK	
10-21-00295	Ferrule, Natural Tefzel	
10-21-00300	Ferrule, Teflon (PTFE)	
10-04-00107	Ferrule, Filter Assembly, PEEK, 2 µm SS Frit	

### OPTI-LOK™ LP 1/4-28 Nuts & Ferrules For .100" OD Tubing

OPTI-Part #	Description	Price
10-21-00283	Nut, Acetal	
10-21-00284	Nut, PEEK	
10-21-00285	Nut, PEEK, Long	
10-21-00281	Ferrule, Natural Tefzel	

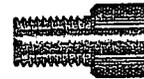
FITTINGS & ADAPTERS



# FITTINGS

## OPTI-LOK™ LP 1/4-28 Nuts & Ferrules For 1/8" OD Tubing

OPTI-Part #	Description	Price
10-21-00307	Nut, Natural PEEK	
10-21-00305	Nut, Black Acetal	
10-21-00310	Nut, White Acetal	
10-21-00311	Nut, White Acetal with Counterbore	
10-21-00306	Nut, Kel-F	
10-21-00309	Nut, Natural Tefzel	
10-21-00317	Nut, Teflon (PTFE)	
10-21-00308	Nut, Natural PEEK, Long	
10-21-00316	Nut, Hex Nylon	
10-21-00313	Ferrule, Natural PEEK	
10-21-00312	Ferrule, Natural Tefzel	
10-21-00318	Ferrule, Teflon (PTFE)	
10-04-00109	Ferrule, Filter Assembly, PEEK, 2 Firm SS Filter	



## 1/4-28 Unions

OPTI-Part #	Description	Price
10-21-00322	Union, Square, Polypropylene	
10-21-00323	Union, Knurled, PEEK	
10-21-00327	Union, Hex, Natural Nylon, Long	



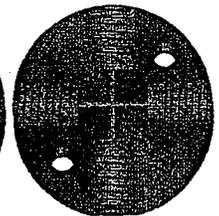
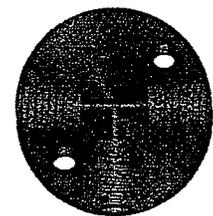
## 1/4-28 PEEK Unions, Knurled With Wrench Flats

OPTI-Part #	Description	Price
10-21-00341	Union, PEEK, .010" thru web	
10-21-00342	Union, PEEK, .020" thru web	
10-21-00344	Union, PEEK, .030" thru web	
10-21-00336	Union, PEEK, .040" thru web	
10-21-00343	Union, PEEK, .050" thru web	



## 1/4-28 Tees & Crosses

OPTI-Part #	Description	Price
10-21-00279	TEE, .020" thru, PEEK	
10-21-00280	TEE, .050" thru, PEEK	
10-21-00286	TEE, .062" thru, PEEK	
10-21-00332	CROSS, .020" thru, PEEK	
10-21-00287	CROSS, .050" thru, PEEK	

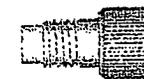


TEE

CROSS

## OPTI-LOK™ LP 1/4-28 Plugs

OPTI-Part #	Description	Price
10-21-01292	Plug, White Acetal	
10-21-00326	Plug, Teflon (PTFE)	



FITTINGS & ADAPTERS

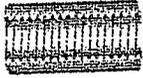
# FITTINGS

Optimize manufactures OPTI-LOK™ M6 fittings for metric applications. We also offer LDC style and SSI style fittings for the special connection requirements of LDC and SSI HPLC systems.

## OPTI-LOK™ M6 Metric, LDC & SSI Style Fittings

### OPTI-LOK M6 Metric Union

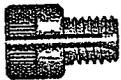
OPTI-Part #	Description	Price
10-27-00325	Union, Natural Nylon	



### OPTI-LOK M6 Metric Nuts & Ferrules for 1/16" OD Tubing

OPTI-LOK 6K PEEK Metric Fittings for 1/16" OD Tubing

OPTI-Part #	Description	Price
10-27-00328	Nut, PEEK, Knurled w/ Hex	
10-27-00329	Nut, PEEK, Knurled w/ Hex w/ Ferrules (10-20-00269) 10/Pk	
10-20-00269	Double End Ferrule, PEEK	



### OPTI-LOK LP Metric Fittings for 1/16" OD Tubing

10-27-00297	Nut, White Acetal	
10-27-00301	Ferrule, Natural, Lsize, Short	
10-27-00303	Ferrule, PE	



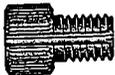
### OPTI-LOK LP Metric Fittings for 1/8" OD Tubing

10-22-00314	Nut, White Acetal	
10-22-00319	Nut, Black Acetal	
10-22-00312	Ferrule, Natural, Lsize, Short	
10-22-00321	Ferrule, PE	



### OPTIMIZE Universal Metric Fittings for 1/16" Tubing

10-24-00388	Universal Nut, SS	
10-24-00372	Universal Nut w/ SS Ferrules (10-24-00369) 10/Pk	
10-24-00370	Ferrule, PEEK	
10-24-00369	Ferrule, SS	



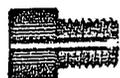
### LDC Style 5/16-24 Fittings

OPTI-Part #	Description	Price
31-24-00735	Nut & Ferrule for 1/8" Suction Tube, SS	
31-24-00736	Nut & Ferrule for 1/16" Discharge Tube, SS	



### SSI Style 1/4-28 Fittings for 1/16" OD Tubing

OPTI-Part #	Description	Price
36-24-00969	Nut, SS	
36-24-00970	Nut, SS w/ Ferrules (36-24-01674) 10/Pk	
36-24-01674	Ferrule, SS	
36-24-01290	Ferrule, PEEK	
10-20-00330	Nut, 1/4-28 6K PEEK	
10-20-00331	Nut, 1/4-28 6K PEEK w/ Ferrules (10-20-00269) 10/Pk	
10-20-00269	Double End Ferrule, PEEK	



# FITTINGS

Optimize Technologies offers genuine Valco fittings, as well as Waters and Parker style nuts and ferrules for most 1/16" OD tubing. All fittings are precision machined from type 316 SS. These Waters style and Parker style fittings are manufactured by Optimize Technologies.

## Stainless Steel & PEEK Fittings

### Parker Style 10-32 Fittings for 1/16" OD Tubing

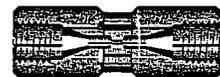
OPTI-Part #	Description	Price
40-24-01275	Nut, SS	
40-24-01276	Nut, SS with Ferrules (40-24-01291), 10/Pk	
40-24-01291	Ferrule, SS	
40-24-01290	Ferrule, PEEK	
40-24-01271	Union, SS, 010" thru (with SS Nuts & Ferrules)	
40-24-01273	Union, SS, 020" thru (with SS Nuts & Ferrules)	

### Genuine Valco 10-32 Fittings for 1/16" OD Tubing

OPTI-Part #	Description	Price
41-24-01277	Nut, SS	
41-24-01281	Nut, SS with Ferrules, (41-24-01279), 10/Pk	
41-24-01278	Nut, Long, SS	
41-24-01279	Ferrule, SS	
41-24-01283	Union, SS, 010" thru (with SS Nuts & Ferrules)	
41-24-01280	Union, SS, 029" thru (with SS Nuts & Ferrules)	
41-24-01282	Ferrule, PEEK	

### Waters Style 10-32 Fittings for 1/16" OD Tubing

OPTI-Part #	Description	OEM #	Price
39-24-01090	Compression Screw, SS	05070	
39-24-01091	Screw with Ferrules (39-24-01291), 10/Pk	25604	
39-24-01291	Ferrule, SS	05063	
39-24-01290	Ferrule, PEEK	21817	
39-24-01088	Union, SS, with SS Nuts & Ferrules	97332	

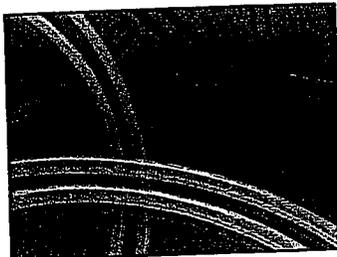


FITTINGS & ADAPTERS

# TUBING

## Teflon® (PTFE) Precut Tubing

This LC-grade Teflon tubing from Optimize is made using only premium grade virgin PTFE, with less than 0.01% liquid absorption.



### 1/16" Outside Diameter Teflon Tubing

OPTI-Part #	Description	Price
10-15-00214	010" ID x 10 ft Natural	
10-15-00215	010" ID x 50 ft Natural	
10-15-00212	010" ID x 10 ft Black	
10-15-00213	010" ID x 50 ft Black	

10-15-00220	020" ID x 10 ft Natural	
10-15-00221	020" ID x 50 ft Natural	
10-15-00216	020" ID x 10 ft Black	
10-15-00219	020" ID x 50 ft Black	

10-15-00225	030" ID x 10 ft Natural	
10-15-00227	030" ID x 50 ft Natural	
10-15-00224	030" ID x 10 ft Black	
10-15-00226	030" ID x 50 ft Black	

10-15-00232	040" ID x 10 ft Natural	
10-15-00233	040" ID x 50 ft Natural	
10-15-00230	040" ID x 10 ft Black	
10-15-00231	040" ID x 50 ft Black	

### .100" Outside Diameter Teflon Tubing

10-15-00205	040" ID x 10 ft Natural	
10-15-00206	040" ID x 50 ft Natural	
10-15-00208	040" ID x 10 ft Black	
10-15-00209	040" ID x 50 ft Black	

### 1/8" Outside Diameter Teflon Tubing

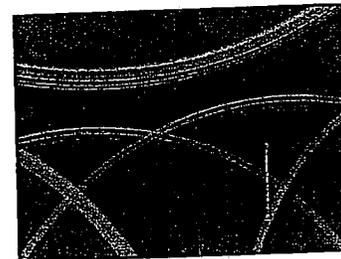
10-15-00238	062" ID x 10 ft Natural	
10-15-00240	062" ID x 50 ft Natural	
10-15-00236	062" ID x 10 ft Black	
10-15-00237	062" ID x 50 ft Black	

### 3/16" Outside Diameter Teflon Tubing

10-15-00243	075" ID x 10 ft Natural	
10-15-00245	075" ID x 50 ft Natural	

## Tefzel® (ETFE) Precut Tubing

Solvent resistance, high-pressure performance and handling ease make Tefzel a good replacement for SS or Teflon tubing. For a completely inert flow path, connect your tubing with OPTI-LOK™ 1/4-28 or 10-32 fittings in Tefzel or PEEK.



### 1/16" Outside Diameter Tefzel Tubing

OPTI-Part #	Description	Price
10-14-00195	010" ID x 10 ft	
10-14-00194	010" ID x 50 ft	
10-14-00196	020" ID x 10 ft	
10-14-00197	020" ID x 50 ft	
10-14-00199	030" ID x 10 ft	
10-14-00200	030" ID x 50 ft	

### 1/8" Outside Diameter Tefzel Tubing

10-14-00202	062" ID x 10 ft	
10-14-00203	062" ID x 50 ft	

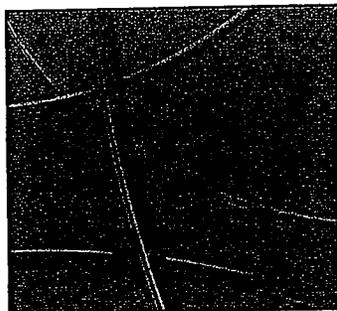
## BURST PRESSURE TABLE

Outside Diameter	Inside Diameter	Burst Pressure*
<b>TEFLON TUBING</b>		
1/16"	010" - 032"	400 psi
1/16"	.040"	1,000 psi
1/16"	.040"	800 psi
1/8"	.062"	800 psi
3/16"	.125"	600 psi
<b>TEFZEL TUBING</b>		
1/16"	010"	4,000 psi
1/16"	020"	3,000 psi
1/16"	030"	2,000 psi
1/8"	.062"	1,000 psi
<b>PEEK TUBING</b>		
1/16"	006" - 010"	12,000 psi
1/16"	020"	8,000 psi
1/16"	030"	5,000 psi
1/16"	.040"	3,000 psi
1/8"	.062"	2,000 psi

\*NOTE: This table is supplied only as a guide to assist you in determining the correct tubing type and size. Rather than being based on continuous use, the burst pressures listed were determined as a result of our testing to find the absolute burst pressure limit. Your routine operating pressure for any tubing should include a margin of safety based on your application.

## OPTI-PEEK™ Precut Tubing

OPTI-PEEK tubing offers better solvent compatibility and high pressure performance than other brands of PEEK tubing. For ion-chromatography and biocompatible applications, OPTI-PEEK is an excellent choice. For optimal performance, use OPTI-LOK 6K PEEK fittings and double-tight ferrules.



### 1/16" Outside Diameter PEEK Tubing

OPTI-Part #	Description	Price
10-13-00168	.006" ID x 10 ft.	
10-13-00170	.006" ID x 50 ft.	
10-13-00175	.010" ID x 10 ft.	
10-13-00177	.010" ID x 50 ft.	
10-13-00181	.020" ID x 10 ft.	
10-13-00185	.020" ID x 50 ft.	
10-13-00187	.030" ID x 10 ft.	
10-13-00191	.030" ID x 50 ft.	
10-13-00199	.040" ID x 10 ft.	
10-13-00181	.040" ID x 50 ft.	

### 1/8" Outside Diameter PEEK Tubing

10-13-00171	.062" ID x 10 ft.
10-13-00174	.062" ID x 50 ft.

## Tubing Cutters

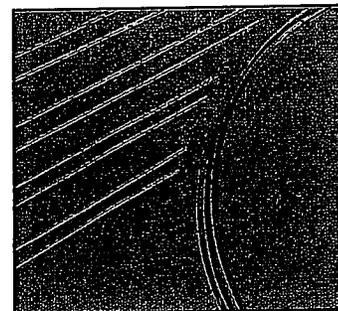
These unique tubing cutters give you a clean, straight cut every time. The plastic tubing cutter features a slotted housing which holds all sizes of our plastic tubing perpendicular to the blade.

The Optimize stainless steel tubing cutter offers a quick, efficient method to cut tubing without collapsing it. This tool works extremely well on narrow bore tubing in which the ID is .006" to .020".

OPTI-Part #	Description	Price
10-10-00139	Plastic Tubing Cutter	
10-10-00140	Stainless Steel Tubing Cutter	

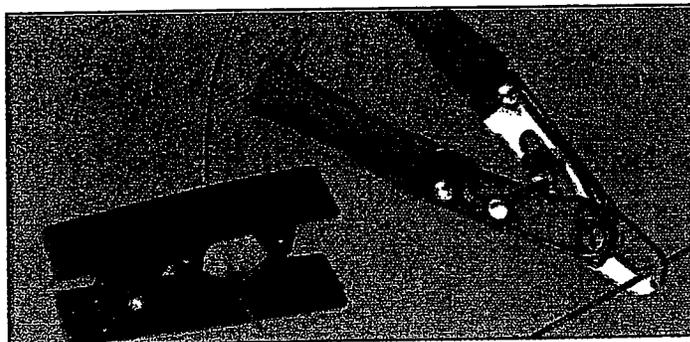
## Stainless Steel Precut Tubing

Optimize offers LC-grade 316 SS tubing, straightened and square-cut for solid, burr-free connections. SS tubing from Optimize is passivated, water washed and flushed with HPLC grade methanol prior to shipment. Tubing is also available for bulk-purchase in longer lengths.



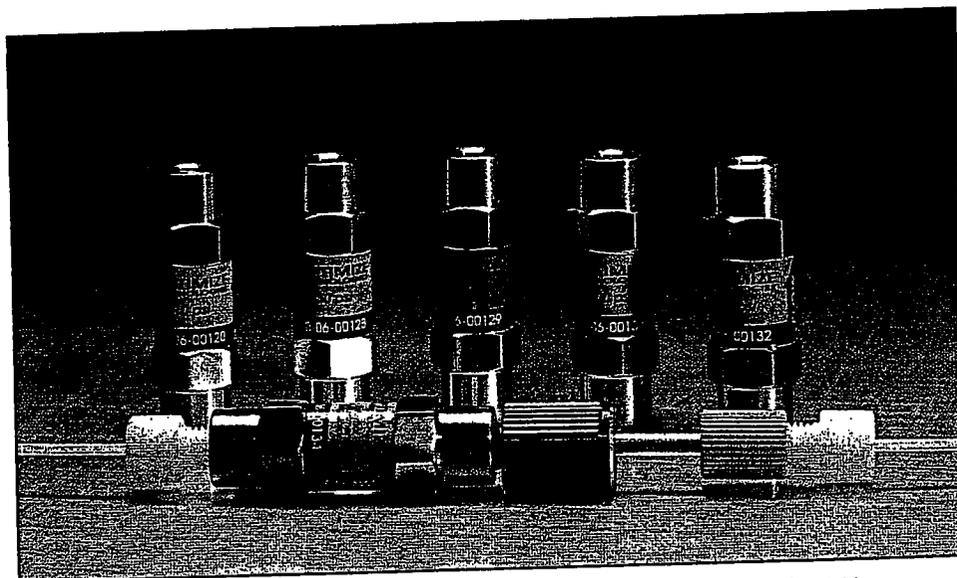
### 1/16" Outside Diameter Stainless Steel Tubing

OPTI-Part #	Description	Price
10-12-00145	.006" ID x 6 cm.	
10-12-00143	.006" ID x 10 cm.	
10-12-00144	.006" ID x 70 cm.	
10-12-00141	.006" ID x 10 ft.	
10-12-00151	.010" ID x 6 cm.	
10-12-00148	.010" ID x 10 cm.	
10-12-00149	.010" ID x 20 cm.	
10-12-00150	.010" ID x 30 cm.	
10-12-00146	.010" ID x 10 ft.	
10-12-00152	.020" ID x 6 cm.	
10-12-00154	.020" ID x 10 cm.	
10-12-00153	.020" ID x 20 cm.	
10-12-00156	.020" ID x 30 cm.	
10-12-00155	.020" ID x 10 ft.	
10-12-00162	.030" ID x 6 cm.	
10-12-00160	.030" ID x 10 cm.	
10-12-00161	.030" ID x 20 cm.	
10-12-00158	.030" ID x 10 ft.	
10-12-00167	.040" ID x 6 cm.	
10-12-00165	.040" ID x 10 cm.	
10-12-00166	.040" ID x 20 cm.	
10-12-00164	.040" ID x 10 ft.	



# BACK PRESSURE REGULATORS

BACK PRESSURE REGULATORS



Flow-through back pressure regulators from Optimize provide a convenient and reliable means of introducing controlled amounts of back pressure in your HPLC flow path. Optimize back pressure regulators are more than just flow restrictors; they are designed to maintain constant back pressure regardless of mobile phase viscosity or flow rate. Use them downstream from your detector to prevent solvent outgassing and bubble formation in the detector cell.

Optimize offers adjustable back pressure regulators designed to provide back pressures in the 0-150 psi range. Adjustment is made via a positive locking mechanism, allowing you to select the back pressure you need, and be sure that pressure will be maintained. These regulators have an internal volume of 100  $\mu$ L, and are supplied with OPTI-LOK™ LP fittings, complete instructions and an adjustment tool. They are available in pre-set pressures of 10, 30, 60, 100 or 150 psi. For regulators preset at pressures not listed, please contact Customer Service.

## Adjustable Back Pressure Regulator

OPTI-Part #	Description	Price
10-06-00120	10 psi	
10-06-00123	30 psi	
10-06-00129	60 psi	
10-06-00131	100 psi	
10-06-00132	150 psi	

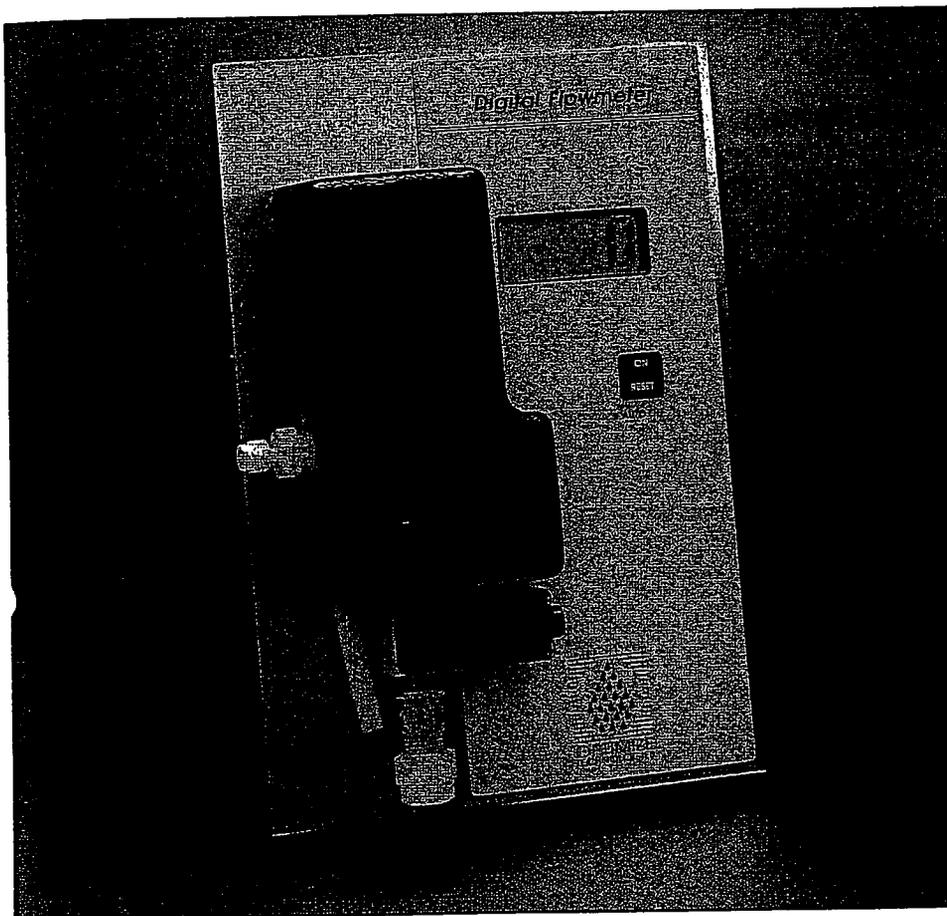
For ultimate convenience in adjustable back pressure regulation, our External Adjustment Regulator is an optimal choice. Any back pressure from 0 to 100 psi can be dialed in simply by turning the external adjustment knob. This regulator is ideal for use in stream splitting applications, and wherever easily accessible fine-tuning of back pressure is a necessity. The External Adjustment Regulator has an internal volume of 100  $\mu$ L, and is supplied with OPTI-LOK LP fittings and Tefzel® connecting tubing.

## External Adjustment Regulator

OPTI-Part #	Description	Price
10-06-00134	External Adjustment Regulator	

# OPTI-FLOW™

Your chromatographic results depend on the capability of your HPLC system to deliver accurate flow rates. On most HPLC systems, however, there is no simple way to directly measure the flow rate being delivered; only indirect information such as back-pressure readings are readily available. With the OPTI-FLOW Digital Flowmeter for HPLC, accurate measurement of flow rate becomes a routine procedure. With OPTI-FLOW, you can perform standard ISO, GMP and GLP pump calibration requirements, as well as monitor post-detector flow volume, without interrupting the HPLC run in progress.



## OPTI-FLOW™ Flowmeter

OPTI-Part #	Description	Price
10-40-01675	OPTI-FLOW Digital Liquid Flowmeter (with 110V Adapter)	
10-40-01677	OPTI-FLOW Package: Digital Liquid Flowmeter & Software (with 110V Adapter)	
10-40-01904	OPTI-FLOW Digital Liquid Flowmeter (CE Marked with 220V Adapter)	
10-40-01905	OPTI-FLOW Package: Digital Liquid Flowmeter & Software (CE Marked with 220V Adapter)	

FEATURES	SPECIFICATIONS	SOFTWARE OPTION
<ul style="list-style-type: none"> <li>• True Volumetric-based results.</li> <li>• NIST-traceable. (certificate provided)</li> <li>• On-line monitoring facilitates troubleshooting of the flow rate without interruption of the run.</li> <li>• Automatic flow rate update.</li> <li>• Flow range: 0.100 to 30.0 mL/min</li> <li>• Inert wetted surfaces: glass, PTFE and stainless steel.</li> <li>• Microsoft Windows™ 3.0 or DOS software available.</li> </ul>	<ul style="list-style-type: none"> <li>• Accuracy: +/- 1%</li> <li>• Repeatability: 0.5%</li> <li>• 70 µL sample volume</li> <li>• 110 or 220 volts</li> </ul>	<ul style="list-style-type: none"> <li>• To fully automate the acquisition and archiving of flow rate data, Optimize offers a software package for DOS and Windows*, which includes:               <ul style="list-style-type: none"> <li>• Software</li> <li>• RS232 module</li> <li>• 10' serial cable</li> <li>• 3' flowmeter cable</li> </ul> </li> <li>* Minimum Requirements: 286 PC and Windows 3.0 or higher.</li> </ul>

# REFERENCE

## Guard Columns: Selecting Optimal Precolumn Protection For Your HPLC

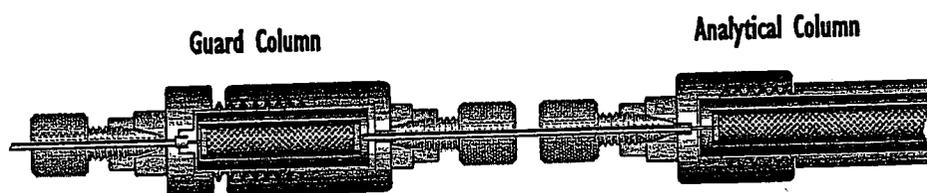
GUARD COLUMNS

Liquid chromatography has become an increasingly sophisticated separatory technique over the last two decades, as advances in instrument technology have led the way to lower detection limits, increased automation and more powerful data-handling capabilities. In similar fashion, improvements in packing material and column design have led to more efficient, selective and reproducible separations. Even with these substantial design improvements, however, the analytical column continues to be a problematic link in the HPLC component chain. With the cost of quality analytical columns continually increasing, and with the price of some specialty analytical columns reaching into the thousands of dollars, effective precolumn protection is a wise precaution in today's cost-conscious HPLC laboratory.

### Choosing A Guard: Factors to Consider

When it comes to choosing a guard column, there are several factors that are important to consider. The fundamental role of a guard column is to trap particulates, chemical contaminants and other foreign material in order to prevent them from fouling the analytical column. A guard column containing the same type of packing material as the analytical column will usually provide the best protection. Chemical contaminants and other substances with a propensity for fouling octadecyl stationary phases would be best trapped by an octadecyl guard column; contaminants that cause deterioration of a particular packing material would first attack the stationary phase in the sacrificial guard, protecting the analytical column for as long as the capacity of the guard column will allow.

A second factor to consider is a guard column's potential for contributing dispersion through introduction of extra-column volume. The installation of a guard column requires that additional connections, and often extra tubing, be incorporated in a section of the chromatograph where excessive dead volume can literally make or break an assay. A well-designed guard column will minimize the amount of extra tubing required for connection to the analytical column, thus minimizing extra-column dispersion.



Some guard columns can contribute to extra-column dispersion, as they must be connected using additional tubing and fittings.

When selecting optimal precolumn protection for your HPLC, you should also consider potential ways in which the guard column will affect separation efficiency. To use a guard column is to extend the length of the packing bed by a finite distance. A well-designed guard column will impart minimal influence on the efficiency of the analytical separation. A guard column that affects efficiency to any great degree will cause problems when validation time arrives, or when the guard itself must be replaced. Pellicular packing materials of larger particle size (40  $\mu\text{m}$ ) can provide effective precolumn protection without significantly influencing the characteristics of the separation, but internal column dimensions must be minimized and tightly controlled to prevent losses in efficiency. Microparticulate stationary phases with particles of 3-5  $\mu\text{m}$  provide greater capacity, but can have a potentially larger effect on separation efficiency.

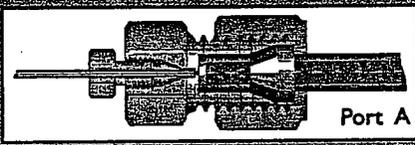
## Optimal Protection By Design

If a prospective guard column is to provide optimal performance and protection for your analytical column, it must address the physical and chemical constraints previously mentioned. OPTI-GUARD™ 1mm and 3mm Guard Columns from Optimize have been designed to offer reliable low-dispersion column protection, while eliminating any chance of dead-volume introduction in the precolumn region. OPTI-GUARD offers tool-free connection with an automatically adjusting tube stem for perfect zero-dead-volume connections, regardless of the analytical column manufacturer's tube stop depth. This patented design guarantees that the tube stem of any OPTI-GUARD will automatically bottom out securely against the tube stop of virtually any 10-32 female port. Some guard columns incorporate molded one-piece couplers or swaged-on ferrules that establish a fixed tube-stop depth for connection to the analytical column. Guards with fixed tube stems will invariably introduce either dead-volume or leaks at the connection with the analytical column when they are switched from one port to another. This situation can occur even when a fixed-stem guard column is switched between different 10-32 ports from the same manufacturer. Because tube stop depth will vary from port to port due to normal manufacturing tolerances, a guard column that utilizes a fixed tube stem will often leak or introduce dead volume when it is switched between different female 10-32 ports (see below).

**Fixed tube stems are a problematic design.**

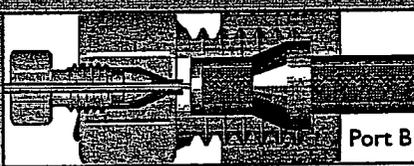
Guard columns with fixed tube stems often do not fit properly when moved to different ports. These illustrations show how a fixed tube stem demonstrates the implications of the fixed tube stem.

A fixed tube stem design establishes when a ferrule is swaged onto tubing at port A.



Port A

Port B has a shorter tube stop depth than port A and the tubing protrudes too far from the end of the ferrule causing leakage.



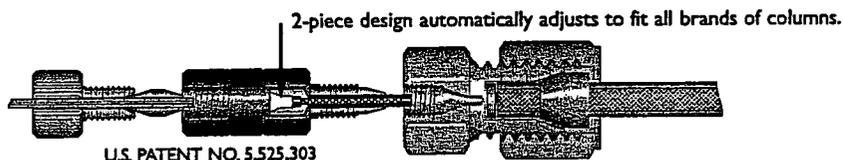
Port B

Port C has a longer tube stop depth than port A, leaving a cavity between the end of the tube and the bottom of the tube stop, introducing dead-volume.



Port C

Ideally, a guard column should perform its primary function of column protection in a manner that is as chemically transparent as possible to the chromatographic separation. When selecting a guard column, choose high quality packing materials that are a good match for the stationary phase of your analytical column. Also, be sure that the guard column you select is designed to minimize extra-column effects. Guards that avoid fixed or pre-swaged tube stems, and connect directly to the analytical column without the need for extra tubing, are the optimal choice.



OPTI-GUARD columns use an adjustable tube stem design for zero-dead-volume connections every time.

# OPTI-GUARD™ 1mm

GUARD COLUMNS

## FEATURES

- No holder needed.
- Depth filtration design.
- Color - coded.
- Completely disposable.
- Compatible with any 10-32 column - unique, packed tube stem automatically adjusts to fit all brands of columns, assuring perfect zero-dead-volume connections.
- Simple hand-tight connection.
- Several OPTI-GUARD Guard Columns can be connected in series to combine chemistries or give added length.
- No bigger than most hand tight fittings - attaches directly to the column, fitting into most column heaters.

## SPECIFICATIONS

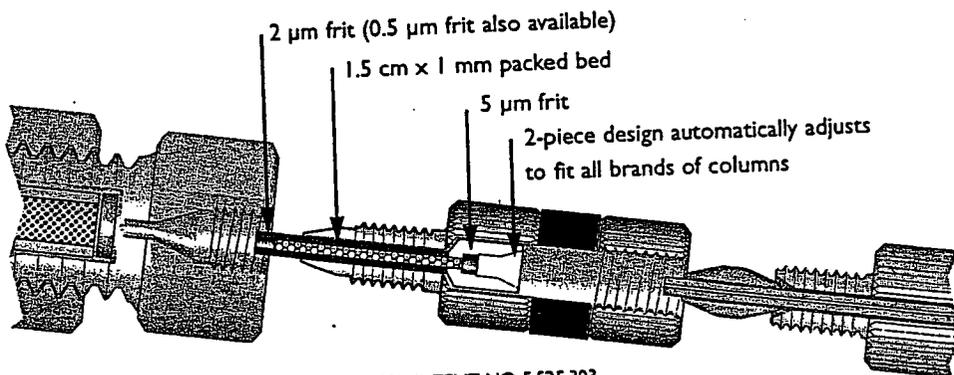
- Overall dimensions: 3/8" diameter x 1" long.
- 1.5 cm x 1 mm packed bed.
- 6,000 psi pressure rated.
- Depth Filtration Design.
- Available in reverse and normal phase chemistries.

## MATERIALS

- Techtron® PPS (Polyphenylene Sulfide)
- 316 Stainless Steel
- PEEK



The OPTI-GUARD™ 1mm Guard Column is a revolutionary precolumn designed for use with any HPLC column. The unique patented design of the OPTI-GUARD 1mm provides a perfect zero-dead-volume connection every time, without the need for a special holder. This versatile design makes the OPTI-GUARD 1mm an excellent choice for protecting all of your analytical, mini and microbore columns. When selecting a guard column, however, it is important to consider what it won't do, as well as what it will do. The OPTI-GUARD will not affect the efficiency of your chromatographic separation; your resulting chromatograms will remain virtually identical to those obtained without a precolumn. For maximum versatility and minimal extra-column effect, make OPTI-GUARD 1mm your first choice in precolumn protection.

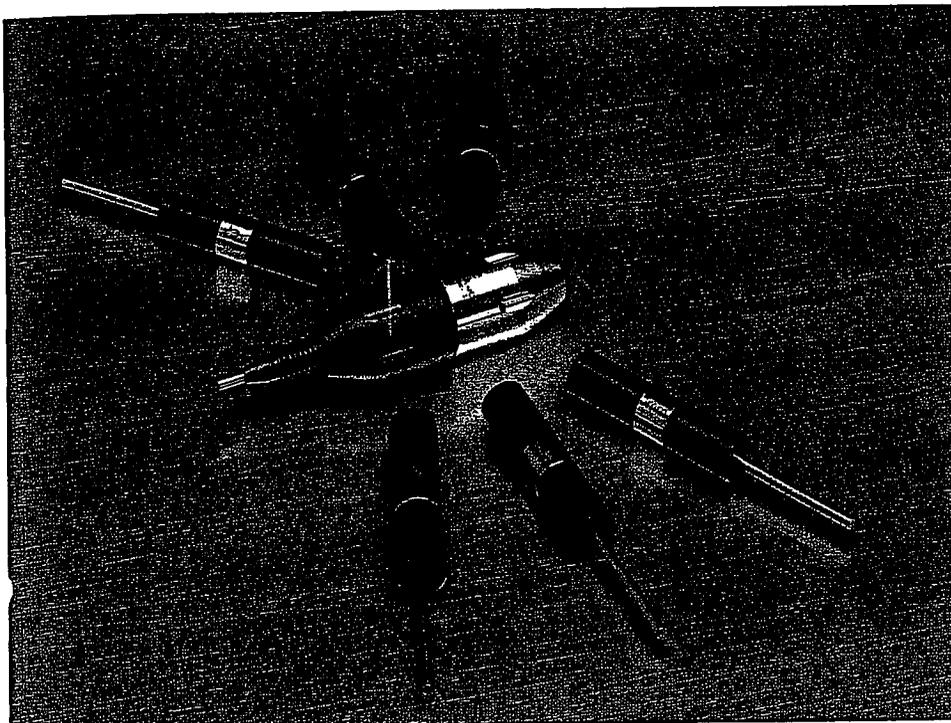


U.S. PATENT NO. 5,525,303

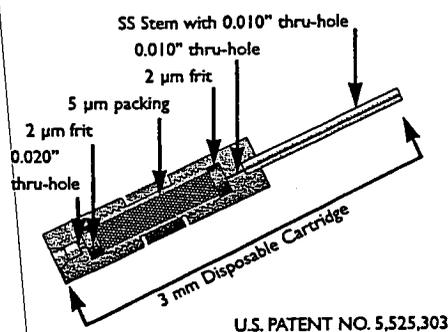
## OPTI-GUARD™ 1mm Guard Column

OPTI-Part #	Packing Description	Color	Qty.	Price
10-02-00007	C <sub>18</sub>	Violet	5	
10-02-00010	C <sub>8</sub>	Yellow	5	
10-02-00015	SiO <sub>2</sub>	Orange	5	
10-02-00018	Phenyl	Green	5	
10-02-00022	C <sub>10</sub>	Blue	5	
10-02-00026	NH <sub>2</sub>	Red	5	
10-02-00030	Anion Exchanger	Black	5	
10-02-00034	Cation Exchanger	White	5	

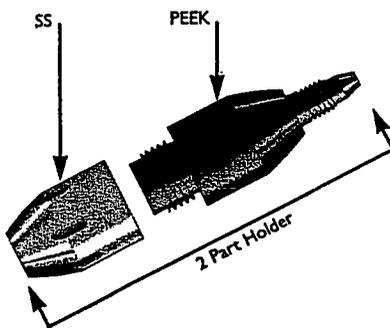
# OPTI-GUARD™ 3mm



The new OPTI-GUARD™ 3mm Guard Column is a revolutionary precolumn designed for use with any HPLC analytical column. The patented design of the OPTI-GUARD 3mm incorporates many of the features of the OPTI-GUARD 1mm Guard Columns, including tool-free zero-dead-volume connection and an automatically adjusting tube stem. This new addition to the OPTI-GUARD family continues a tradition of reliable performance with minimal influence on your chromatography. The OPTI-GUARD 3mm Guard Column is designed to provide optimal protection for your analytical column. For increased capacity and minimal extra-column effect, choose the OPTI-GUARD 3mm Guard Column.



U.S. PATENT NO. 5,525,303



## FEATURES

- Replaceable/disposable cartridge.
- Six bonded phases.
- Compatible with any 10-32 column – tube stem automatically adjusts to fit all brands of columns, assuring perfect zero-dead-volume connections.
- Simple hand-tight connection.
- Attaches directly to the column, requiring no additional tubing or fittings.
- Application versatility & loadability.
- Chemical stability.
- Mechanical stability.

## SPECIFICATIONS

- 1.5 cm x 3 mm packed bed.
- 6,000 psi pressure rated.
- Packing: Kromasil™ 100Å – a spherical, totally porous, silica-based chromatography material, developed and manufactured to meet the exacting standards of modern liquid chromatography. Developed for both analytical and preparative HPLC.

## MATERIALS

- 316 Stainless Steel
- PEEK

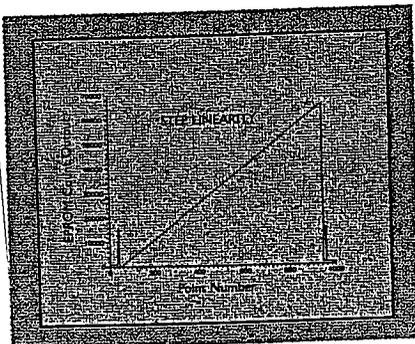
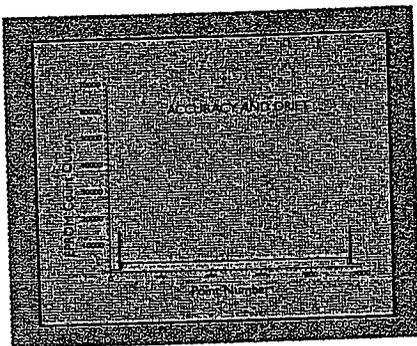
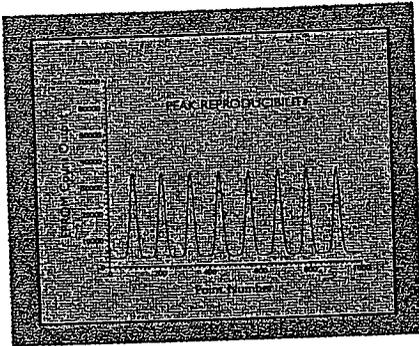
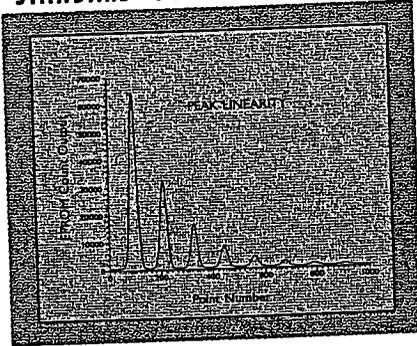
## OPTI-GUARD™ 3mm Guard Column

OPTI-Part #	Packing Description	Qty.	Price
10-02-01482	C <sub>18</sub> Cartridge	3	
10-02-01485	C <sub>8</sub> Cartridge	3	
10-02-01494	C <sub>4</sub> Cartridge	3	
10-02-01722	C <sub>1</sub> Cartridge	3	
10-02-01488	NH <sub>2</sub> Cartridge	3	
10-02-01491	Silica Cartridge	3	
10-02-01495	Holder	3	

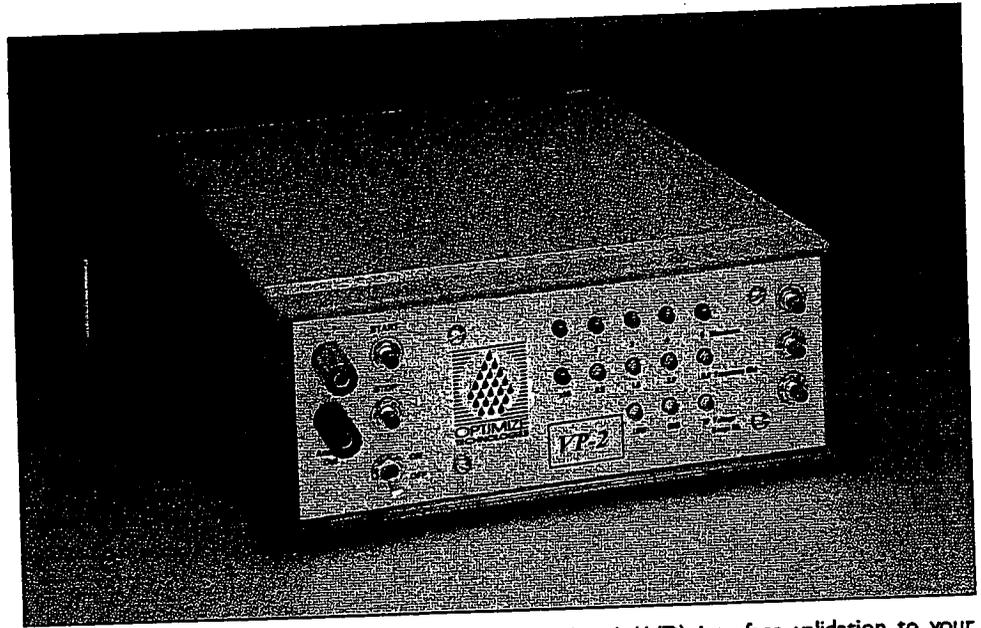
GUARD COLUMNS

# VP-2

## STANDARD OUTPUT WAVEFORMS



Waveforms may be generated at different speeds to simulate a variety of chromatographic peaks.



Bring the power of reliable and certifiable analog-to-digital (A/D) interface validation to your laboratory with the VP-2 A/D Interface Verification System from Optimize. The VP-2 is designed to verify the linearity, reproducibility and accuracy of your A/D interface. It generates NIST-traceable predefined waveforms that can be read by your data acquisition system, and measures the performance of your interface via software-based comparisons of collected data to original waveforms generated by the VP-2.

### A/D Interface Validation For Your Lab

Everything from acquisition and analysis of the chromatographic data to control of instrument parameters can now be handled by dedicated workstations and LIMS systems. Computer-based data acquisition requires that chromatograms be transferred to the digital domain via analog-to-digital interface prior to storage and subsequent processing. If the primary goal of a thorough validation procedure is to verify the linearity, reproducibility and accuracy of the HPLC system as a whole, this validation procedure should take into account the performance of the data-acquisition system, and more specifically that of the A/D interface. Most regulatory entities already require that routine validation procedures be extended to cover the software and hardware of HPLC data-acquisition systems. The VP-2 A/D Verification System enables you to perform NIST-traceable validation of your data acquisition system, giving you the power to meet these validation requirements in your laboratory.

The VP-2 works by generating predefined waveform voltages (referred to as "KEY" waveforms) that can be read by the A/D interface under study. Interfaces are validated by comparing the waveform as collected by the data acquisition device (referred to as the "TEST" waveform) to the KEY waveform. Waveforms are stored on a Zero-Insertion Force (ZIF) EPROM. This easily changed chip allows access to alternate waveforms simply by switching EPROMs. Predefined digital waveforms are converted to analog waveform voltages by a high resolution 22-bit digital to analog converter, and can be output at variable speeds, allowing simulation of a wide variety of chromatographic peaks (see charts at left).

### Chromatographic Software Validation EPROM & Custom EPROMs

Chromatographic software validation can be performed using an optional HPLC Software EPROM. Single level, multi-level and internal standard usage can be simulated and output to the A/D interface under study. These waveforms allow for testing of software algorithms, such as those defining start and stop points for peaks, or governing the separation and quantification of several fused peaks. If you wish to test a particular software feature for which a suitable waveform is not available, a custom-programmed EPROM containing appropriate waveforms can be purchased. Please contact Optimize for more information about the availability of custom EPROMs for the VP-2.

VALIDATION

## Potentiometer-Free Calibration, NIST Traceability

All VP-2 hardware calibrations are performed using the included software. There are no analog potentiometers used in calibration, as these are mechanical devices, and are hence subject to drift with time. The absence of potentiometers ensures optimal performance and reliability between calibrations. The accuracy of waveform voltages output by the VP-2 is directly traceable to the National Institute of Standards and Technology. During initial calibration and subsequent recalibration, the accuracy of the VP-2 is certified by a NIST-traceable voltmeter. Each of the VP-2 waveforms are output to this voltmeter at each of the possible voltage ranges. Any deviations from ideal observed during calibration are stored in the VP-2 software, which can then display the traceable voltage output calibrated to the specific VP-2 waveform generator. Thus, each VP-2 will have its own unique calibration file, individually matched by serial number to the instrument itself. A certificate of calibration is provided with each new unit, and with each annual recertification.

### FEATURES

- High resolution 22-bit digital to analog (D/A) converter.
- User selectable output voltage range: 0 to 10 mV, 0 to 100 mV, and 0 to 1.0V.
- Available option: 0 to 10.0V range.
- Output conversion rates: 0.5, 1.0, 2.0, 5.0, 10.0, 20.0, and 50.0 Hz.
- MS Windows™ 3.1 based software.
- Three report options:

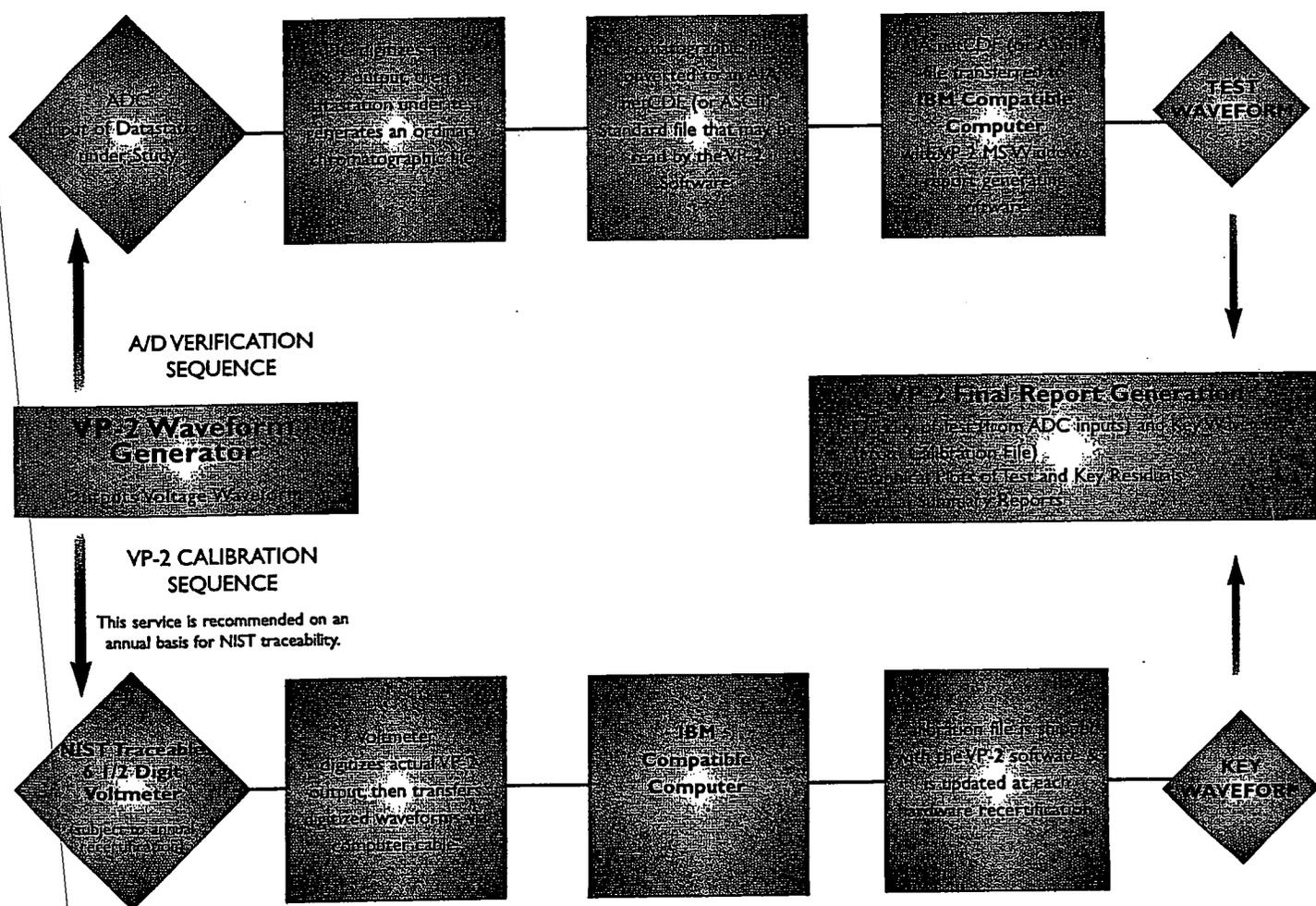
**Overlay:**  
Overlays traceable VP-2 output with test waveform.

**Graph:**  
Unique to each waveform, displays specific test information.

**Summary:**  
Text report summary of all data.

### VP-2 A/D Verification System

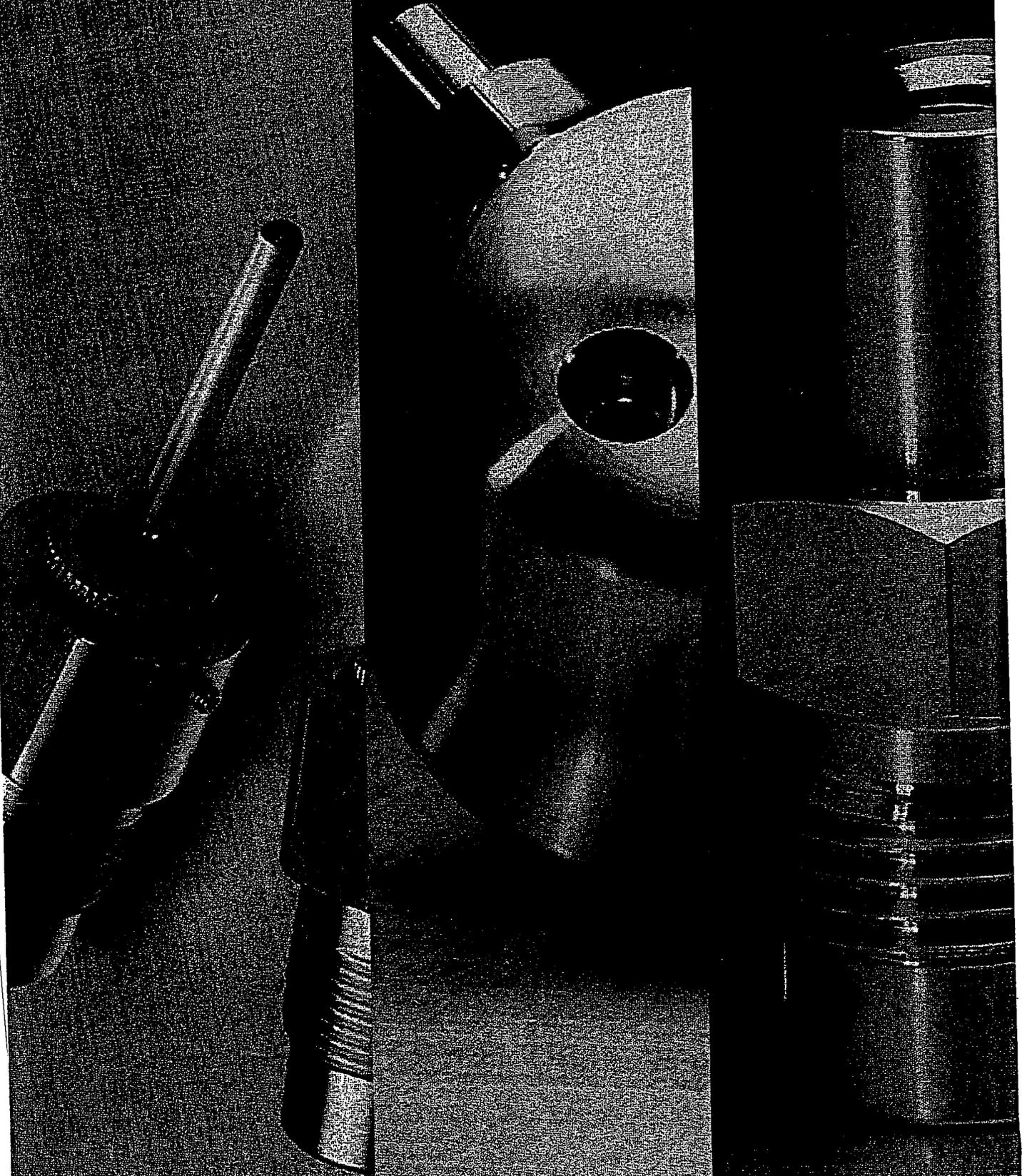
OPTI-Part #	Description	Price
10-15-01/76	VP-2 with Linearity Verification EPROM	
10-15-01/77	Chromatographic EPROM	
10-15-01/78	NIST Recertification with Annual Software Upgrade	



VALIDATION

OEM

OEM



## Optimize Components for OEM HPLC Systems

This section of our catalog contains information about replacement HPLC components from Optimize designed specifically for OEM systems. On the next few pages, you'll find general information about products like OPTI-MAX® Cartridge Check Valves, OPTI-SEAL® piston seals, and other accessories offered for multiple OEM systems, as well as reference articles containing useful technical information on topics like periodic maintenance and check valve repair. Optimize manufactures precision-machined components for a large selection of solvent delivery systems from over 20 manufacturers. Starting on page 50, you'll find sections containing comprehensive product listings for each of these HPLC brands, organized alphabetically by manufacturer's name. Look for your brand in the table of contents on page 5, or use the EZ Locator chart below. Manufacturers' names are listed at the top of each page in the OEM section. Specific pump models are listed separately within each section, to guide you quickly to Optimize components designed specifically for your particular pump brand and model.

## The Cost of Time

For your laboratory to be competitive, it must remain productive. The racks of samples lined up for analysis must make the trek from autosampler to data file smoothly and reliably, by way of your HPLC. And if your HPLC system goes down with an unexpected maintenance problem, there is one thing of which you can be sure: fixing the problem is going to cost you time and money. Replacement HPLC components can be expensive, but these costs are peanuts in relation to the cost of lost analysis time. For most productive labs, the opportunity cost of a single HPLC system sitting idle with a maintenance problem can reach into the thousands of dollars.

At Optimize, every component we manufacture is designed with an important purpose in mind: to keep your HPLC system operating at peak performance between scheduled maintenance periods. We precision-machine our OEM replacement components to the most exacting standards in the industry. Balls and seats used in our OPTI-MAX cartridge check valves are precisely matched to meet leak-test benchmarks four times more stringent than the industry standard. OPTI-SEAL and ITB™ piston seals are engineered to provide longer lifetimes and superior shedding characteristics. Replacement pistons from Optimize offer excellent concentricity and consistent surface finish. Whether you are buying a fitting, a priming valve or a complete pump head assembly from Optimize, you can always be sure that our commitment to quality and innovation is paramount.

## OEM Components: The Truth of the Matter

Most instrument manufacturers will tell you quite emphatically that for optimal instrument performance, you should use only components that meet their performance specifications. At Optimize, we couldn't agree more. Every replacement component we offer is fully guaranteed to meet or exceed the specifications of the original equipment manufacturer. In fact, Optimize already produces HPLC components for several OEM manufacturers that are incorporated as original equipment on new HPLC instrumentation. Researchers and manufacturers alike are discovering that when it comes to replacement HPLC components, precision and innovation can have a very dramatic effect on the bottom line.

## Your Resource for New Innovations

At Optimize, we offer a comprehensive selection of components for most brands of HPLC system, but we're always seeking new ways to bring you new products that will save your laboratory time and money. If you have a need for a product you don't see listed in this catalog, please call a technical support representative to discuss your particular fluid handling challenges.

## EZ Brand Locator

Use this chart to locate the catalog section dedicated to your brand of HPLC pump.

Brands
ABRILabs
Beckman/Alto
Brook
Bischoff
Dionex
Gilson/Alto
Syntek
Shimadzu
Hicchi
Kico
Jasco
Komper
Kratos
ED/Minon/Nov
EKB
Perkin Elmer
Rainin
Shimadzu/ESA
Specia-Physics
SSI
Tratex
Varian
Water

OEM

# REFERENCE

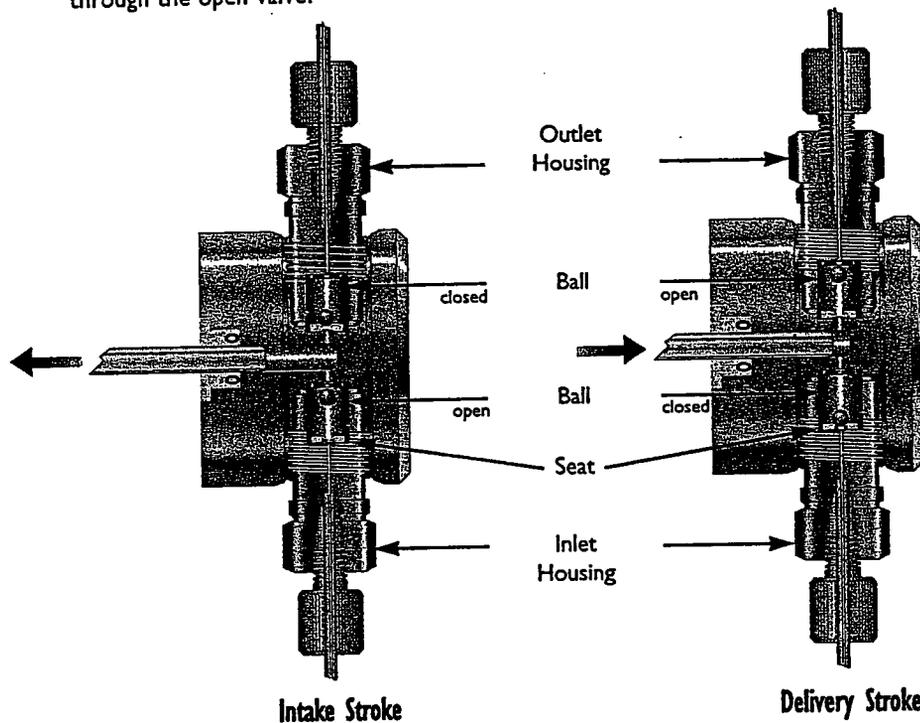
## Check Valves: A Guide To Function & Maintenance

Check valve replacement is one of the most common HPLC maintenance challenges. While theoretically simple, it can become a time-consuming and frustrating service problem. Proper check valve operation is a key to reliable pump performance, and the ability to diagnose and correct check valve problems rapidly is vital to minimizing productivity loss in your laboratory.

### Check Valve Operation

The mechanics of check valve operation are not complicated. Inside most check valves, a ball of a certain diameter sits freely above a seat containing a single through-hole with a diameter slightly smaller than that of the ball. Liquid should not pass the check valve in any way but through the seat. When the pressure behind the seat exceeds that above the ball, liquid flows through the valve. When the pressure above the ball exceeds the pressure below the seat, the ball returns to rest in the seat, forming a seal and preventing solvent backflow.

Most modern HPLC pumps deliver solvent at high pressure using two reciprocating pistons in series or parallel. Check valves are located in series above and below the piston, restricting flow to a single direction, usually upward. As the piston completes a delivery stroke and begins the intake stroke, the pressure inside the pump head drops. High pressure above the outlet check valve causes it to seal, while the inlet check valve opens as solvent is drawn through it and into the pump head. When the piston switches direction for the compression stroke, the pressure inside the head increases, and soon exceeds the pressure below the inlet check valve. The inlet valve seals, then the outlet opens, and solvent flows up through the open valve.



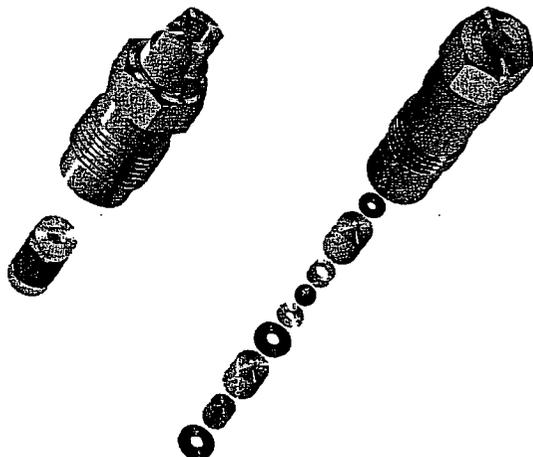
Numerous factors determine how effectively and reliably a check valve will perform. First and foremost, it is the integrity of the seal made between ball and seat that defines a check valve's performance. Other factors such as the weight of the ball and the amount of travel it is allowed within the valve affect the response time of the valve. Check valves must seal rapidly in response to pressure changes if pump pulsation is to be minimized, but the amount of ball travel allowed must be sufficient to allow unrestricted solvent flow through the valve.

## Weighing Your Options

Cartridge-based check valve systems are by far the most convenient and reliable means of check valve replacement. Pre-assembled check valve cartridges are inserted into a reusable housing, giving you the economy of a rebuild kit without the substantial risk of contamination. Our OPTI-MAX® Cartridge Check Valve System is the most versatile and durable cartridge-based replacement check valve system available. Cartridges are available in several configurations, loaded with precision-matched ball & seat sets leak-tested to the tightest specifications in the industry. A single OPTI-MAX cartridge fits OPTI-MAX inlet and outlet housings for multiple pump brands, so you can keep your check valve inventory to a minimum.

The modular nature of cartridge-based replacement check valve systems has allowed for greater flexibility in the selection of materials used for balls, seats and cartridge bodies. Check valves containing ruby balls and sapphire seats continue to be a popular choice for HPLC users, but ceramic ball and seat sets have been steadily gaining acceptance. Because ceramic has a density 1.5 times that of ruby, the heavier ceramic ball should seat more rapidly, improving check valve performance for some applications. OPTI-MAX check valve cartridges are available with balls and seats made from ceramic or ruby/sapphire, loaded into PEEK or stainless steel cartridge bodies. For general use, stainless steel cartridges offer excellent solvent compatibility and mechanical strength, and are an excellent choice for most HPLC applications. For biocompatible HPLC systems, PEEK cartridges provide a completely bio-inert flowpath when used with PEEK OPTI-MAX housings. When bio-inertness is a requirement, we recommend PEEK cartridges with ceramic balls and seats. Look for our cartridge type recommendations in the Cartridge Code Charts within each OEM manufacturer's section. For more information about OPTI-MAX cartridge check valves, please refer to page 40.

For those who prefer to rebuild their own check valves or purchase complete pre-tested check valve assemblies, Optimize offers direct OEM replacement check valves and rebuild kits for a variety of manufacturers' HPLC pumps. If you choose to rebuild check valves yourself, minimize the chance of contamination by performing the rebuild procedure in a clean and dust-free environment.



Check Valves can be replaced using cartridge-based systems ( left )  
or pretested assemblies and rebuild kits ( right )

CHECK VALVES



## OPTI-MAX® Cartridge Check Valves: Using the Cartridge Code

When you order the OPTI-MAX Cartridge Check Valve System for your HPLC pump, you have a choice of cartridge and ball/seat materials. OPTI-MAX Cartridges are available in both stainless steel (SS) and PEEK, and are loaded with precision-matched sets of ceramic or ruby/sapphire balls and seats. You can easily select the type of cartridge you need using the Cartridge Code Chart that appears next to every OPTI-MAX product listing in the brand-specific sections of this catalog. For more information on selecting cartridge and ball/seat materials, refer to page 39.

Part numbers for OPTI-MAX products throughout this catalog contain a middle set of digits called the Cartridge Code, that you can use to specify the type of cartridge you need. When you see a part number such as 34-00902, simply follow the blue arrow behind the symbol to a set of codes corresponding to your OPTI-MAX cartridge choices. Find the two-digit code that matches your preferred cartridge type, and substitute that number for 00 to produce the part number you need. There may be more than one set of codes listed in a single table, so be sure to follow the arrow from your instrument section to the correct set of codes for that instrument.

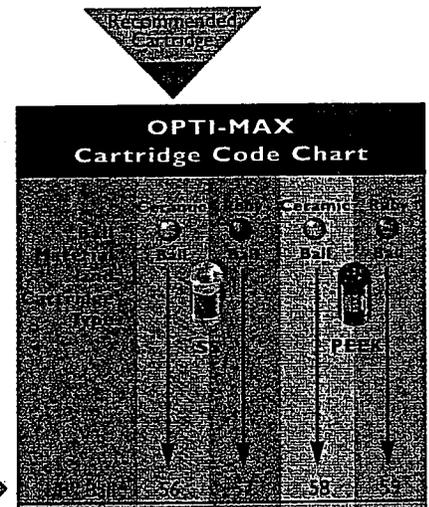
To demonstrate the OPTI-MAX Cartridge Code ordering system, we'll build some example part numbers using the OPTI-MAX ordering guide below.

### SAMPLE TABLE

#### OPTI-MAX® Cartridge Check Valves

##### Shimadzu LC-6A, LC-10AS FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	34-00902	OPTI-MAX Inlet Housing & Cartridge	728-12153-91	\$
OUTLET	34-00907	OPTI-MAX Outlet Housing & Cartridge	728-19054-93	
CARTRIDGE	10-002004	OPTI-MAX Replacement Cartridges: 1/8" Ball, 2/PI		



**OPTI-MAX® Cartridge Code Chart**

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to your left. See page 41 for more information.

If you have a Shimadzu LC-10AS pump and wish to order stainless steel replacement cartridges with ceramic balls and seats, follow the blue arrow behind the cartridge code symbol to the group of four Cartridge Codes listed for this Shimadzu system. The correct choice for a stainless steel/ceramic OPTI-MAX cartridge is 56. By substituting this code for 00 in the part number for replacement OPTI-MAX cartridges, you get 10-56-02004.

If you need to order an inlet housing with a PEEK/ceramic OPTI-MAX cartridge, the procedure is the same. The Cartridge Code Chart indicates that the for this OPTI-MAX cartridge is 58. The correct part number (34-58-00902) is found by substituting 58 for 00 in the part number listed for an inlet housing and cartridge.

For each pump brand and model, we recommend use of a particular OPTI-MAX cartridge. Be sure to look for recommended cartridges highlighted within each Cartridge Code Chart. If you have questions about finding the correct part number for the OPTI-MAX cartridge you require, please call our Technical Support Department.

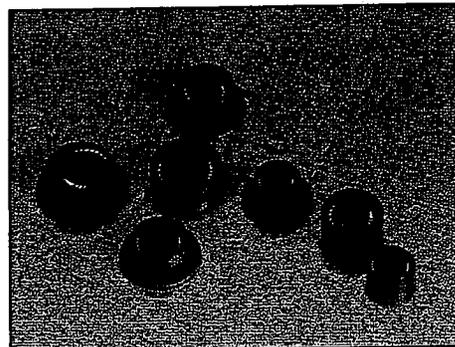
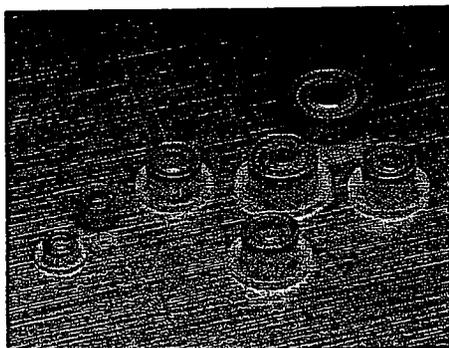
# REFERENCE

## Selecting A Piston Seal For Your Application

PISTON SEALS

Today's HPLC methodologies can require a variety of mobile phase constituents, delivered over a range of operating temperatures and using unique solvent delivery parameters. When selecting a piston seal for your HPLC system, you should always take into consideration the operating conditions required for your particular application.

Optimize manufactures replacement piston seals using either of two long-lasting, versatile polymer-based materials, specifically formulated to provide longer seal lifetimes and superior wear characteristics. Our OPTI-SEAL® pump seals are machined from OS-10.1™, a proprietary UHMW-Polyethylene blend. We also offer ITB™ (Improved Teflon® Blend) seals, made from a proprietary PTFE-based material.



### Selecting A Seal: Chemical & Mechanical Considerations

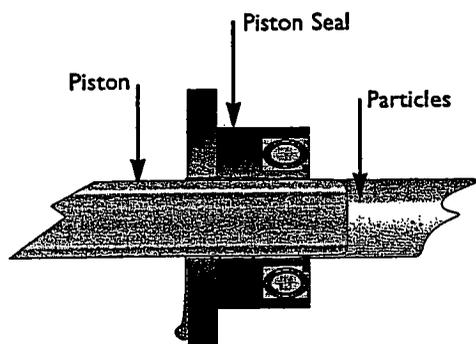
So which seal works best for what? Selecting the best seal for the application is fairly easy, providing you know what to consider. While other variables play a role, the composition of your mobile phase will be the primary factor in determining which pump seal will work best for your application. UHMW-Polyethylene pump seals will typically yield longer lifetimes than PTFE seals under wholly or mostly aqueous conditions; the UHMW-PE polymer is a harder material than PTFE, and is much more resistant to abrasion. Conversely, PTFE performs well in mobile phases that are more strongly organic in composition. Because it is softer, PTFE will also be more likely to conform to a plunger that is worn or has flat spots, or one that is misaligned or out-of-round. Plungers that show visible signs of wear and/or damage should be replaced as soon as possible, however, as they will cause accelerated wear of the plunger seal. Any savings realized by continued use of a damaged plunger will be more than offset by increased seal consumption and an overall increase in instrument maintenance and downtime.

A second consideration is that of solvent compatibility. PTFE is impervious to almost all common HPLC solvents, but a select few mobile phase constituents can be a problem. Likewise, polyethylene exhibits excellent overall solvent resistivity characteristics, but is susceptible to attack by certain organic solvents and strong oxidizing agents. For more specific information on seal material-solvent compatibilities, please refer to the table on page 8.

## Seal Shedding: Avoiding Problems with Particulates

It's an unavoidable fact by design, the piston seals in your HPLC pump are subject to wear, and will eventually contribute in some degree to particulate contamination in your mobile phase. Obviously, the trapping and removal of these seal shedding particulates via in-line filtration is a vital precaution. At Optimize, we also address seal shedding problems well in advance of the moment you place a new seal in your pump head. We incorporate optimal system protection by design, by paying careful attention to the shedding characteristics of the polymers used in the manufacture of our OPTI-SEAL and ITB piston seals.

As a PTFE-based seal wears, small particles of PTFE and graphite filler are sloughed off from the internal seal wall, and swept into the mobile phase. Many original equipment seals can shed particulates as small as 0.5 micron, and smaller. Particles of this size can be especially problematic for your HPLC system, as they will either pass through or rapidly block 2 micron in-line filter and column end frits. Our ITB polymer has been specifically formulated to shed particles large enough to be trapped at the surface of a 2  $\mu\text{m}$  frit, allowing more reliable filtration of shedding particulates, and minimization of back-pressure problems due to frit clogging.



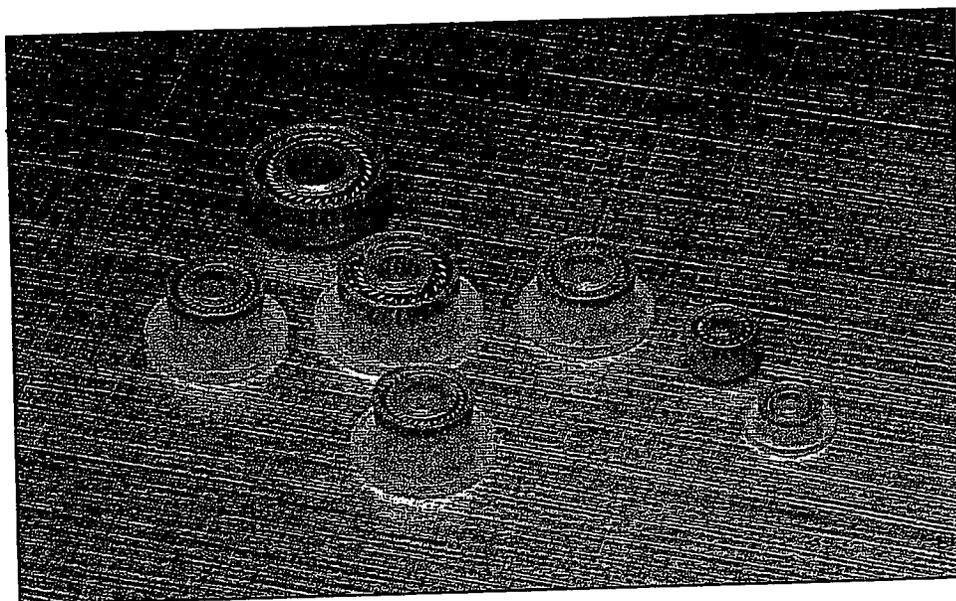
The OS-10.1 UHMW-PE blend used in our OPTI-SEAL piston seals is five to ten times more resistant to wear than typical PTFE-blend seals, and offers drastically reduced shedding under mostly or wholly aqueous or buffered-aqueous conditions. Also, since the OS-10.1 material is a homogeneous polymer, any particulates that might shed from an OPTI-SEAL will tend to be stringy fibers that do not cause complete frit blockage.

## Making Your Selection

As the best choice of seal material ultimately depends on the composition of your mobile phase, then you already have most of the information you need to make a decision. In short, both UHMW-PE and PTFE-based seals will perform well across the mobile phase spectrum. The superior wear characteristics of UHMW-PE will be most dramatic in reverse phase applications where aqueous or mostly aqueous mobile phases are used. In situations where a high percentage of strong organic solvents are required, or where the seals will be operated at high temperatures, a PTFE seal is the better choice. If you use multiple HPLC systems and run a variety of mobile phases, it can be beneficial to dedicate systems to specific applications according to mobile phase requirements. By reserving an adequate number of instruments specifically for applications requiring high organic content mobile phases, you can limit your PTFE seal usage to these systems, and equip your other HPLC instruments with longer-lasting polyethylene seals.

For additional information on solvent compatibilities, or for a specific seal recommendation based on your operating conditions, please contact our Technical Support Department.

# PUMP SEALS

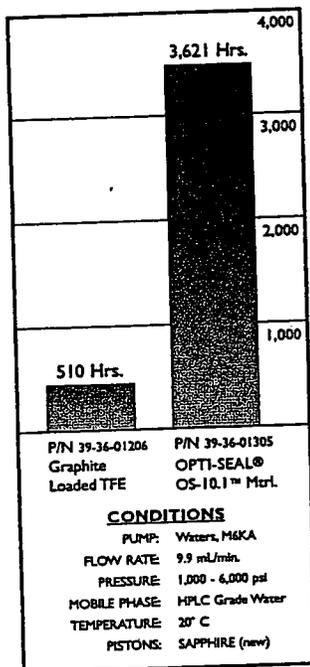


## Replacement Pump Seals From Optimize

Replacement pump seals from Optimize are the seal of choice for longer lifetimes and superior wear characteristics. Available for most OEM analytical HPLC systems, Optimize pump seals are precision-machined from either of two polymer-based materials. An exclusive UHMW-PE blend is used for OPTI-SEAL® pump seals, and our ITB™ (Improved Teflon® Blend) pump seals are machined from a PTFE-based material. The polymer blends used in Optimize seals are carefully selected to provide optimal shedding characteristics and reduced friction, and to be completely free of extractables that might otherwise interfere with your analysis.

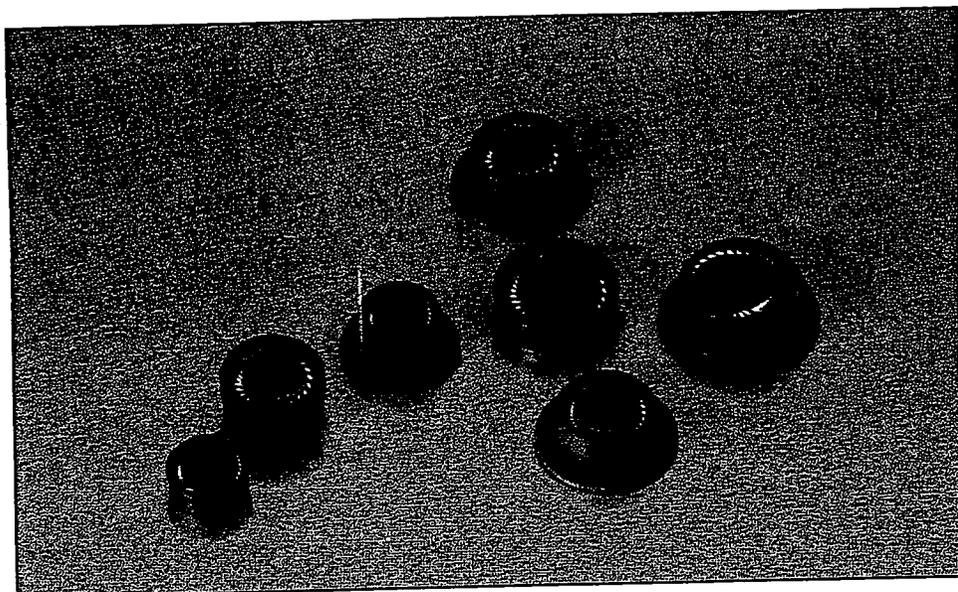
## OPTI-SEAL: Superb Performance in Aqueous Conditions

OPTI-SEAL pump seals from Optimize are the longest-lasting seal you can buy for use in mostly aqueous or aqueous-buffered mobile phases. Made from OS-10.1™, a proprietary UHMW-PE-based material, OPTI-SEAL pump seals are much more resistant to wear than traditional PTFE-based seals, and can last up to seven times longer than traditional seals under mostly aqueous conditions. The OS-10.1 polymer is optimized for HPLC sealing applications. It has a coefficient of friction approaching that of Teflon, thanks to special additives that reduce friction between the seal and the piston surface but do not contribute extractable contaminants. Because the UHMW-PE blend is a homogeneous polymer, it also exhibits superior shedding characteristics. Overall shedding is minimized due to increased resistance to wear, and the particles that are shed tend to be long, stringy fibers that are less likely to clog frits or tubing.



## EZ OPTI-SEAL® Locator

Manufacturer	Model	Part Number	Part Number
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000
Agilent	1100	0100000000	0100000000



## Improved Teflon® Blend™: Optimal Performance By Design

ITB pump seals are a superior choice to most OEM graphitized-carbon/Teflon seals. Our proprietary PTFE-based Improved Teflon Blend (ITB™) polymer is designed to shed particles large enough to be trapped at the surface of a 2 µm frit. Many OEM PTFE-based seals shed particles as small as 0.5 micron; particles of this size have the greatest potential for causing frit blockages, leading to increased back-pressure. ITB seals are excellent for applications requiring elevated temperatures or mobile phases with high organic content. The ITB polymer exhibits broad compatibility with most HPLC solvents. PTFE-based seals tend to be softer than those made from UHMW-PE, and will more likely maintain a seal at high pressure in situations where piston side-loading or misalignment occurs; they will also conform more readily to a worn piston.

## A Multi-Seal Strategy

It can be very beneficial to keep both OPTI-SEAL® and ITB pump seals on hand in your laboratory. Seal lifetimes can be maximized by using OPTI-SEAL for mostly aqueous-based applications, and switching to ITB for applications that employ higher amounts of organic solvents. This multiple seal strategy can be even more effective if you have several HPLC systems available. By dedicating certain systems for applications where PTFE-based seals are required, the remainder of your HPLCs can be equipped with OPTI-SEAL for maximum seal lifetime and minimal shedding.

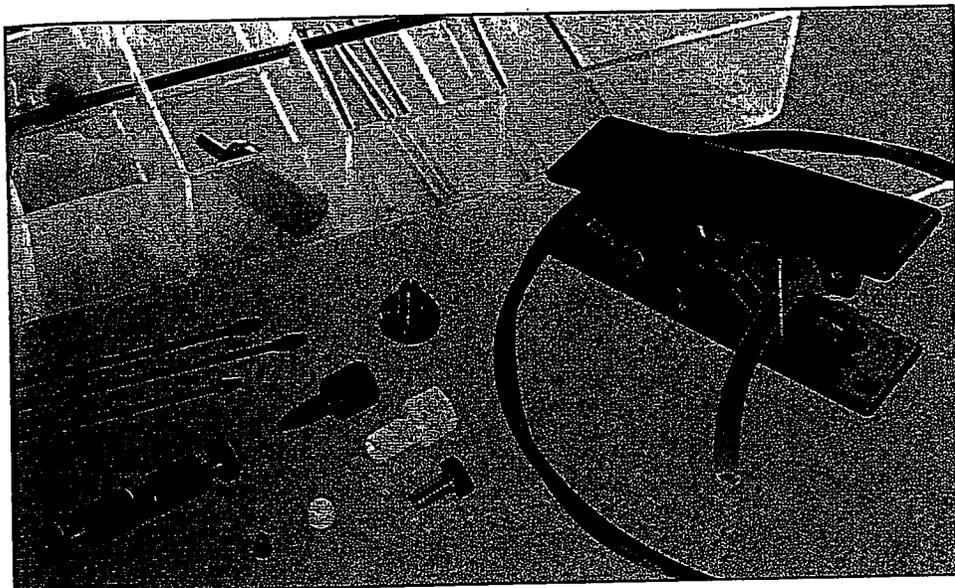
OPTI-SEAL and ITB pump seals are available for a wide selection of HPLC pump brands and models. For more information on Optimize pump seals for your type of pump, please use the EZ Locator Chart below to find the page number corresponding to your pump manufacturer. For more information on selecting the best seal for your application, please refer to page 42, or call Technical Support at 800-669-9015.

## EZ ITB™ PTFE Pump Seal Locator

Brand	Brand	Part	Page
ABI/Kritchev	Orion	EDGM	151
Beckman/Alto	Hickok	UCB	150
Bio-Rad	Hi-Tech	Perkin-Elmer	151
Bioson	Hi-Tech	Rainin	151
Dionex	Jasco	Shimadzu	151
Gilson/Rainin	Knauf	Spec	151



# HPLC FITTINGS KITS



HPLC Fittings Kits from Optimize contain a useful selection of our precision-machined fittings, tubing and other accessories, specifically tailored for the connection requirements of your HPLC system. To locate the best kit for your HPLC brand and model, use the EZ Locator Chart at the bottom of this page. We also offer Universal HPLC Fittings Kits containing fittings and tubing for making common connections on multiple HPLC systems.

Pricing and part numbers for HPLC Fittings Kits are listed separately within each of the OEM manufacturer sections of this catalog. Use this EZ Locator chart below to find the page number corresponding to your brand of pump:

EZ HPLC Fittings Kit Locator			
Manufacturer	Model	Kit Name	Page
ABRAXIS	Series 1000/2000	Series 1000/2000	48
Beckman	Series 1000	Series 1000	49
Beckman	Series 1100	Series 1100	50
Beckman	Series 1200	Series 1200	51
Beckman	Series 1500	Series 1500	52
Beckman	Series 1600	Series 1600	53
Beckman	Series 1700	Series 1700	54
Beckman	Series 1800	Series 1800	55
Beckman	Series 1900	Series 1900	56
Beckman	Series 2000	Series 2000	57
Beckman	Series 2100	Series 2100	58
Beckman	Series 2200	Series 2200	59
Beckman	Series 2300	Series 2300	60
Beckman	Series 2400	Series 2400	61
Beckman	Series 2500	Series 2500	62
Beckman	Series 2600	Series 2600	63
Beckman	Series 2700	Series 2700	64
Beckman	Series 2800	Series 2800	65
Beckman	Series 2900	Series 2900	66
Beckman	Series 3000	Series 3000	67
Beckman	Series 3100	Series 3100	68
Beckman	Series 3200	Series 3200	69
Beckman	Series 3300	Series 3300	70
Beckman	Series 3400	Series 3400	71
Beckman	Series 3500	Series 3500	72
Beckman	Series 3600	Series 3600	73
Beckman	Series 3700	Series 3700	74
Beckman	Series 3800	Series 3800	75
Beckman	Series 3900	Series 3900	76
Beckman	Series 4000	Series 4000	77
Beckman	Series 4100	Series 4100	78
Beckman	Series 4200	Series 4200	79
Beckman	Series 4300	Series 4300	80
Beckman	Series 4400	Series 4400	81
Beckman	Series 4500	Series 4500	82
Beckman	Series 4600	Series 4600	83
Beckman	Series 4700	Series 4700	84
Beckman	Series 4800	Series 4800	85
Beckman	Series 4900	Series 4900	86
Beckman	Series 5000	Series 5000	87
Beckman	Series 5100	Series 5100	88
Beckman	Series 5200	Series 5200	89
Beckman	Series 5300	Series 5300	90
Beckman	Series 5400	Series 5400	91
Beckman	Series 5500	Series 5500	92
Beckman	Series 5600	Series 5600	93
Beckman	Series 5700	Series 5700	94
Beckman	Series 5800	Series 5800	95
Beckman	Series 5900	Series 5900	96
Beckman	Series 6000	Series 6000	97
Beckman	Series 6100	Series 6100	98
Beckman	Series 6200	Series 6200	99
Beckman	Series 6300	Series 6300	100
Beckman	Series 6400	Series 6400	101
Beckman	Series 6500	Series 6500	102
Beckman	Series 6600	Series 6600	103
Beckman	Series 6700	Series 6700	104
Beckman	Series 6800	Series 6800	105
Beckman	Series 6900	Series 6900	106
Beckman	Series 7000	Series 7000	107
Beckman	Series 7100	Series 7100	108
Beckman	Series 7200	Series 7200	109
Beckman	Series 7300	Series 7300	110
Beckman	Series 7400	Series 7400	111
Beckman	Series 7500	Series 7500	112
Beckman	Series 7600	Series 7600	113
Beckman	Series 7700	Series 7700	114
Beckman	Series 7800	Series 7800	115
Beckman	Series 7900	Series 7900	116
Beckman	Series 8000	Series 8000	117
Beckman	Series 8100	Series 8100	118
Beckman	Series 8200	Series 8200	119
Beckman	Series 8300	Series 8300	120
Beckman	Series 8400	Series 8400	121
Beckman	Series 8500	Series 8500	122
Beckman	Series 8600	Series 8600	123
Beckman	Series 8700	Series 8700	124
Beckman	Series 8800	Series 8800	125
Beckman	Series 8900	Series 8900	126
Beckman	Series 9000	Series 9000	127
Beckman	Series 9100	Series 9100	128
Beckman	Series 9200	Series 9200	129
Beckman	Series 9300	Series 9300	130
Beckman	Series 9400	Series 9400	131
Beckman	Series 9500	Series 9500	132
Beckman	Series 9600	Series 9600	133
Beckman	Series 9700	Series 9700	134
Beckman	Series 9800	Series 9800	135
Beckman	Series 9900	Series 9900	136
Beckman	Series 10000	Series 10000	137
Beckman	Series 10100	Series 10100	138
Beckman	Series 10200	Series 10200	139
Beckman	Series 10300	Series 10300	140
Beckman	Series 10400	Series 10400	141
Beckman	Series 10500	Series 10500	142
Beckman	Series 10600	Series 10600	143
Beckman	Series 10700	Series 10700	144
Beckman	Series 10800	Series 10800	145
Beckman	Series 10900	Series 10900	146
Beckman	Series 11000	Series 11000	147
Beckman	Series 11100	Series 11100	148
Beckman	Series 11200	Series 11200	149
Beckman	Series 11300	Series 11300	150
Beckman	Series 11400	Series 11400	151
Beckman	Series 11500	Series 11500	152
Beckman	Series 11600	Series 11600	153
Beckman	Series 11700	Series 11700	154
Beckman	Series 11800	Series 11800	155
Beckman	Series 11900	Series 11900	156
Beckman	Series 12000	Series 12000	157
Beckman	Series 12100	Series 12100	158
Beckman	Series 12200	Series 12200	159
Beckman	Series 12300	Series 12300	160
Beckman	Series 12400	Series 12400	161
Beckman	Series 12500	Series 12500	162
Beckman	Series 12600	Series 12600	163
Beckman	Series 12700	Series 12700	164
Beckman	Series 12800	Series 12800	165
Beckman	Series 12900	Series 12900	166
Beckman	Series 13000	Series 13000	167
Beckman	Series 13100	Series 13100	168
Beckman	Series 13200	Series 13200	169
Beckman	Series 13300	Series 13300	170
Beckman	Series 13400	Series 13400	171
Beckman	Series 13500	Series 13500	172
Beckman	Series 13600	Series 13600	173
Beckman	Series 13700	Series 13700	174
Beckman	Series 13800	Series 13800	175
Beckman	Series 13900	Series 13900	176
Beckman	Series 14000	Series 14000	177
Beckman	Series 14100	Series 14100	178
Beckman	Series 14200	Series 14200	179
Beckman	Series 14300	Series 14300	180
Beckman	Series 14400	Series 14400	181
Beckman	Series 14500	Series 14500	182
Beckman	Series 14600	Series 14600	183
Beckman	Series 14700	Series 14700	184
Beckman	Series 14800	Series 14800	185
Beckman	Series 14900	Series 14900	186
Beckman	Series 15000	Series 15000	187
Beckman	Series 15100	Series 15100	188
Beckman	Series 15200	Series 15200	189
Beckman	Series 15300	Series 15300	190
Beckman	Series 15400	Series 15400	191
Beckman	Series 15500	Series 15500	192
Beckman	Series 15600	Series 15600	193
Beckman	Series 15700	Series 15700	194
Beckman	Series 15800	Series 15800	195
Beckman	Series 15900	Series 15900	196
Beckman	Series 16000	Series 16000	197
Beckman	Series 16100	Series 16100	198
Beckman	Series 16200	Series 16200	199
Beckman	Series 16300	Series 16300	200
Beckman	Series 16400	Series 16400	201
Beckman	Series 16500	Series 16500	202
Beckman	Series 16600	Series 16600	203
Beckman	Series 16700	Series 16700	204
Beckman	Series 16800	Series 16800	205
Beckman	Series 16900	Series 16900	206
Beckman	Series 17000	Series 17000	207
Beckman	Series 17100	Series 17100	208
Beckman	Series 17200	Series 17200	209
Beckman	Series 17300	Series 17300	210
Beckman	Series 17400	Series 17400	211
Beckman	Series 17500	Series 17500	212
Beckman	Series 17600	Series 17600	213
Beckman	Series 17700	Series 17700	214
Beckman	Series 17800	Series 17800	215
Beckman	Series 17900	Series 17900	216
Beckman	Series 18000	Series 18000	217
Beckman	Series 18100	Series 18100	218
Beckman	Series 18200	Series 18200	219
Beckman	Series 18300	Series 18300	220
Beckman	Series 18400	Series 18400	221
Beckman	Series 18500	Series 18500	222
Beckman	Series 18600	Series 18600	223
Beckman	Series 18700	Series 18700	224
Beckman	Series 18800	Series 18800	225
Beckman	Series 18900	Series 18900	226
Beckman	Series 19000	Series 19000	227
Beckman	Series 19100	Series 19100	228
Beckman	Series 19200	Series 19200	229
Beckman	Series 19300	Series 19300	230
Beckman	Series 19400	Series 19400	231
Beckman	Series 19500	Series 19500	232
Beckman	Series 19600	Series 19600	233
Beckman	Series 19700	Series 19700	234
Beckman	Series 19800	Series 19800	235
Beckman	Series 19900	Series 19900	236
Beckman	Series 20000	Series 20000	237

Individual components may vary according to pump brand and model. For complete information on kit contents for your HPLC pump, please contact technical support representatives.

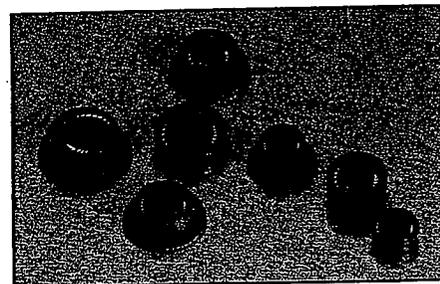
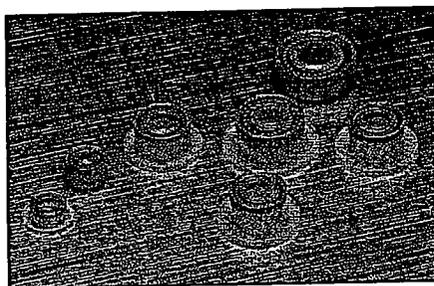
ACCESSORY KITS

# REFERENCE

## Better Performance Through Periodic Maintenance

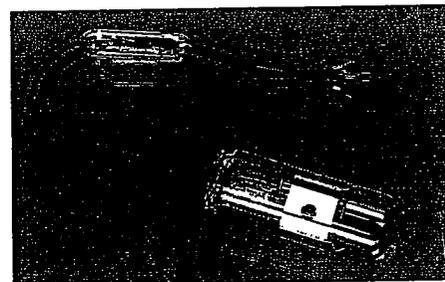
PERIODIC MAINTENANCE

As with most analytical instruments, HPLC systems require periodic maintenance if they are to perform optimally. There are two basic approaches to maintenance of an HPLC system; some laboratories may choose to establish a specific schedule for replacement of key system components, while others might employ a "fix it when it breaks" philosophy. The ultimate goal of any effective maintenance plan should be to minimize instrument down-time wherever possible. Implementation of a regular, periodic maintenance plan is the best way to achieve this goal, and can also play an important role in meeting regulatory compliance guidelines. Outlined below are recommended maintenance schedules for some commonly replaced HPLC system components. These schedules can be used as general guidelines to assist you in implementing a periodic maintenance schedule for your HPLC system(s), but can be adjusted based on your experience with maintenance cycles in your laboratory, in order to more closely match your operational conditions.



### Piston Seals

No other wetted component within a typical HPLC system experiences as much direct wear as the piston seal. The average lifetime of a piston seal will vary somewhat depending upon related parameters, such as the seal material, the composition of the mobile phase, the presence of particulates or precipitated salts around the seal, and the condition of the piston itself. Most laboratory P.M. schedules call for replacement of the piston seal on a quarterly or semi-annual basis. In general, the piston seal should be replaced at least once every six months, providing there is no excessive and unusual wear due to the factors listed. Where conditions are less than optimal, more frequent replacement will likely be required.

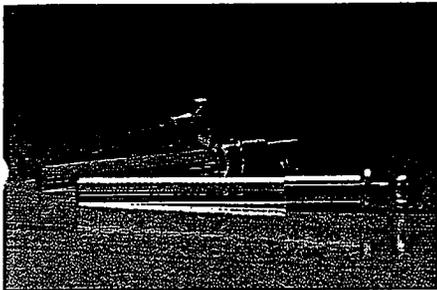


### UV Detectors

For UV detectors, source lamps are the most common consumable item requiring routine replacement. The frequency of replacement will vary depending upon the amount of usage, but it can be estimated based upon the frequency of use and the anticipated lifetime of the lamp. Typically, source lamps will require replacement annually or semi-annually.

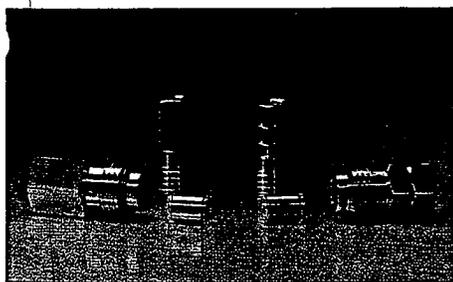
## Pistons

The pistons inside an HPLC pump typically do not require routine replacement, but they too are subject to wear, and should be inspected as part of the P.M. schedule. They should be examined at least once a year, and preferably whenever the seal is replaced. Close examination of the surface finish can reveal potential problems such as flat spots, out-of-roundness, adhered particulates or buffer salts, scratches and cracks. Light microscopes can be useful for inspecting the condition of a piston. Particular attention should be paid to the piston when UHMW-PE seals are to be installed in place of PTFE-based seals. UHMW-PE provides considerably longer seal lifetimes when used with mostly aqueous mobile phases, but the PE material is less forgiving than the softer PTFE blend. A worn or damaged piston that performs adequately with a PTFE seal may cause problems with UHMW-PE. When switching to UHMW-PE seals after using PTFE, it is usually a good idea to replace the piston at the same time.



## Check Valves

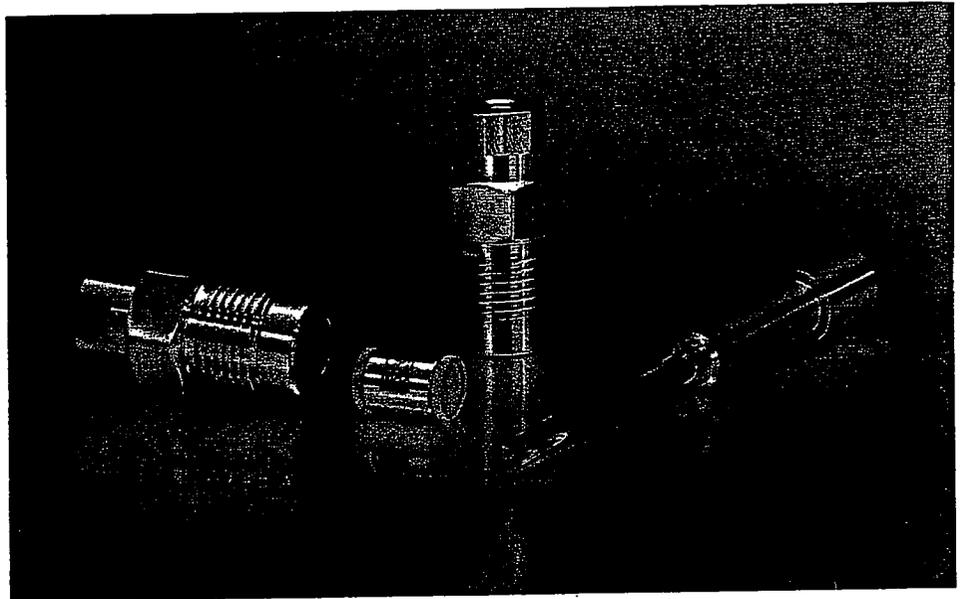
As with piston seals, the lifetime of a check valve will vary depending upon chromatographic conditions. The ball and seat are subject to wear, and the ball may also become coated with particulates or other matter, causing sealing problems. The majority of laboratories routinely replace check valves every six months. Once again, longer or shorter lifetimes may be the norm in your laboratory, and the frequency of replacement may require some adjustment. When replacing check valves, both complete rebuild kits and replacement cartridge check valves are viable options. Of these, cartridge-based systems are usually the preferable choice, due to greater convenience and reliability, and reduced risk of contamination during installation.



## Autosampler or Injection Valve

For most sample injection devices, the only components that require regular replacement are rotor seals and liquid seals. This can usually be performed on an annual basis.

# ABI/KRATOS



OPTI-MAX® Cartridge Check Valve System and Piston for ABI/Kratos

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your ABI/Kratos HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.

ABI/KRATOS



OPTI-MAX Cartridge Code Chart	
Ball Material	Cartridge Type
Ceramic	SS
Ceramic	PEEK

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### ABI/Kratos Spectraflow 400 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	2100-00451	OPTI-MAX Inlet Housing & Cartridge	7200-0060	
OUTLET	2100-00460	OPTI-MAX Outlet Housing & Cartridge	7200-0062	
CARTRIDGE	1040-02004	OPTI-MAX Replacement Cartridges: 1/8" Ball 2/Pk		

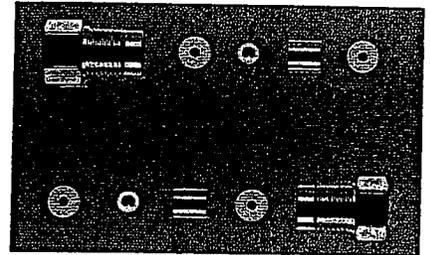
number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### ABI/Kratos Spectraflow 400

Type	OPTI-Part #	Description	OEM #	Price
INLET	21-38-00442	Tested Inlet 1/8"	7200-0060	
OUTLET	21-38-00447	Tested Outlet 1/8"	7200-0067	
REBUILD	21-38-00449	Rebuild Kit, 1/8" (Rebuilds 2)		
REBUILD	21-38-00450	Rebuild Kit, 1/16" (Rebuilds 2)		

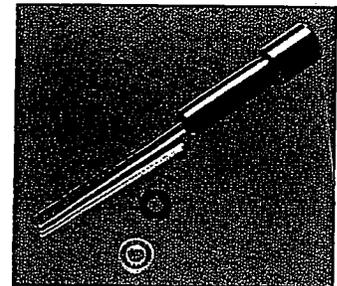


Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### ABI/Kratos Spectraflow 400

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	21-34-00437	OPTI SEAL OHSV W/RE PISTON	7200-0189	
OPTI PIP	21-34-00438	OPTI SEAL OHSV W/RE PISTON Seal 10 PIP		
PISTON	21-34-00434	Sapphire Piston	7400-1970	



ABI/KRATOS

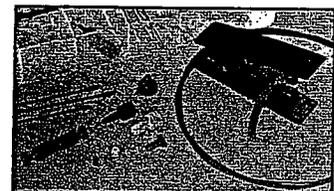
Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your ABI/Kratos pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

For your convenience, we offer these replacement lamps for your UV detector, which are guaranteed to meet or exceed original manufacturer's specifications.

## Accessory Kits and Lamps

### ABI/Kratos Spectraflow 400

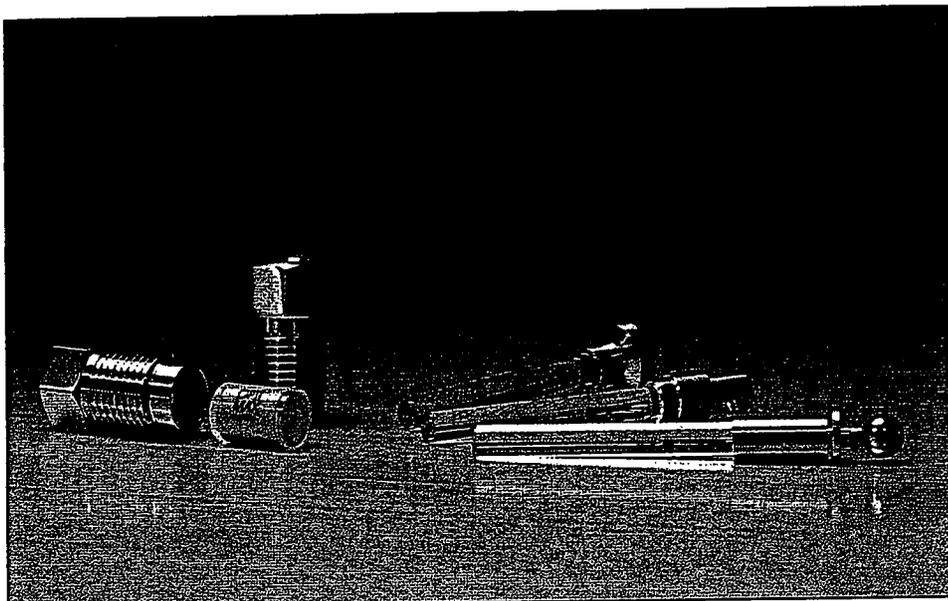
Type	OPTI-Part #	Description	OEM #	Price
1st AID KIT	21-08-00433	HPLC First Aid Kit Spectraflow 400		
FIT KIT	21-08-00432	Fittings Kit, All ABI/Kratos		
LAMP	21-32-01294	Lamp, FS-970 Detector	2900-0489	



Fittings Kit

# BECKMAN/ALTEX

BECKMAN/ALTEX



OPTI-MAX® Cartridge Check Valve System and Pistons for Beckman/Altex

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your Beckman/Altex HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



### OPTI-MAX Cartridge Code Chart

Material	Ball	Seat	Cartridge Code
Stainless Steel	Ceramic	Ball	55
Stainless Steel	Ruby/Sapphire	Ball	56
Stainless Steel	Ceramic	Seat	57
Stainless Steel	Ruby/Sapphire	Seat	58
PEEK	Ceramic	Ball	65
PEEK	Ruby/Sapphire	Ball	66
PEEK	Ceramic	Seat	67
PEEK	Ruby/Sapphire	Seat	68

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

Beckman 100A, 110A/110B, 112/112M, 114/114M, 116, 118, 125, 126, 127, 128 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	22-000516	OPTI-MAX Inlet Housing & Cartridge	240720	
OUTLET	22-000520	OPTI-MAX Outlet Housing & Cartridge	240721	
CARTRIDGE	10-002005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk		

Replace CC with number from this chart to select the cartridge type you need.

## Finding Parts for Beckman System Gold

To find an OPTI-MAX cartridge for your Beckman System Gold pump, first identify the model number of your pump. Then, locate the model number in the listings found throughout this section.

# BECKMAN/ALTEX

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### 100A, 110A/110B

Type	OPTI-Part #	Description	OEM #	Price
INLET	22-38-00503	Tested Inlet (Old Style)	243054	
REBUILD	22-38-00506	Rebuild Kit (Rebuilds 1) -- * * parts included		
	22-38-00509	Inlet Housing		
★	22-38-00510	Washer Seal	243711	
★	22-38-01311	3/16" Ball & Seat	243712	
	22-38-00511	3/16" Ball Retainer		
★	22-38-01323	Pump Head Washer, Kel-F	243091	



Tested Inlet Check Valve (Old Style)

### 12/112M, 114/114M, 116, 118, 125, 126, 127, 128

Type	OPTI-Part #	Description	OEM #	Price
INLET	22-38-00504	Tested Inlet (Old Style)	243038	
REBUILD	22-38-00507	Rebuild Kit (Rebuilds 1) -- * * parts included		
	22-38-00508	Inlet Housing		
★ (2)	22-38-01318	Kel-F Washer, Inside	244187	
★ (2)	22-38-01310	3 mm Ball/Seat	243659	
	22-38-00512	3 mm Ball Retainer		
★	22-38-00513	Kel-F Washer, Outside	243658	



Tested Inlet Check Valve (Old Style)

### 100A, 110A/B, 112/112M, 114/114M, 116, 118, 125, 126, 127, 128

Type	OPTI-Part #	Description	OEM #	Price
OUTLET	22-38-00505	Tested Outlet (Old Style)	243040	
REBUILD	22-38-00502	Rebuild Kit (Rebuilds 1) -- * * parts included		
★	22-38-00514	Flat Filter	243067	
★ (2)	22-38-01310	3 mm Ball/Seat	243659	
	22-38-00512	3 mm Ball Retainer		
★ (2)	22-38-01318	Kel-F Washer, Inside	244187	
	22-38-00515	Outlet Housing		

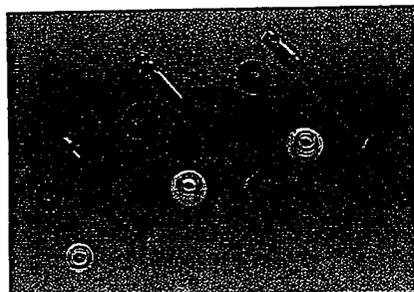


Tested Outlet Check Valve (Old Style)

BECKMAN/ALTEX

# BECKMAN/ALTEX

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.



Seals and Pistons for Beckman/Altex Pumps

## Finding Parts for Beckman System Gold

The Beckman System Gold pump and valve components and model listings found throughout this section.

BECKMAN/ALTEX

## Seals and Pistons

### Beckman, 100A, 110A/110B

Type	OPTI-Part #	Description	OEM #	Price
O-RING SEAL	22-36-00498	O-RING SEAL O-RING VPE Piston Seal	887138	
O-RING PK	22-36-00499	O-RING SEAL O-RING VPE Piston Seal 10/PK		
ITB**	22-36-00492	ITB PTFE Piston Seal	887138	
ITB 10/PK	22-36-00493	ITB PTFE Piston Seal 10/PK		
PISTON	22-34-00477	Sapphire Piston 100A	243043	
PISTON	22-34-00475	Sapphire Piston 110A/110B	243045	
TOOL	22-10-00474	Seal Forming Tool		

### Beckman 105, 110 Prep

Type	OPTI-Part #	Description	OEM #	Price
O-RING SEAL	22-36-00484	O-RING SEAL O-RING VPE Piston Seal	887139	
O-RING PK	22-36-00485	O-RING SEAL O-RING VPE Piston Seal 10/PK		
ITB**	22-36-00486	ITB PTFE Piston Seal	887139	
ITB 10/PK	22-36-00487	ITB PTFE Piston Seal 10/PK		

### Beckman 112/112M

Type	OPTI-Part #	Description	OEM #	Price
O-RING SEAL	22-36-00482	O-RING SEAL O-RING VPE Piston Seal	236797	
O-RING PK	22-36-00483	O-RING SEAL O-RING VPE Piston Seal 10/PK		
ITB**	22-36-00494	ITB PTFE Piston Seal	236797	
ITB 10/PK	22-36-00495	ITB PTFE Piston Seal 10/PK		
PISTON	22-34-00476	Sapphire Piston	243043	

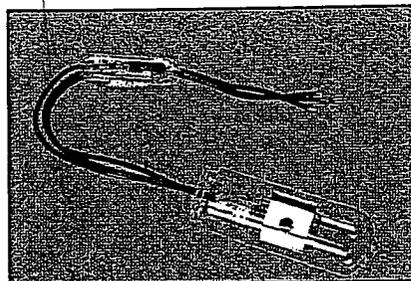
### Beckman 114/114M, 116, 126

Type	OPTI-Part #	Description	OEM #	Price
O-RING SEAL	22-36-00480	O-RING SEAL O-RING VPE Piston Seal	243047	
O-RING PK	22-36-00481	O-RING SEAL O-RING VPE Piston Seal 10/PK		
ITB**	22-36-00496	ITB PTFE Piston Seal	243037	
ITB 10/PK	22-36-00497	ITB PTFE Piston Seal 10/PK		
PISTON	22-34-00476	Sapphire Piston	243043	

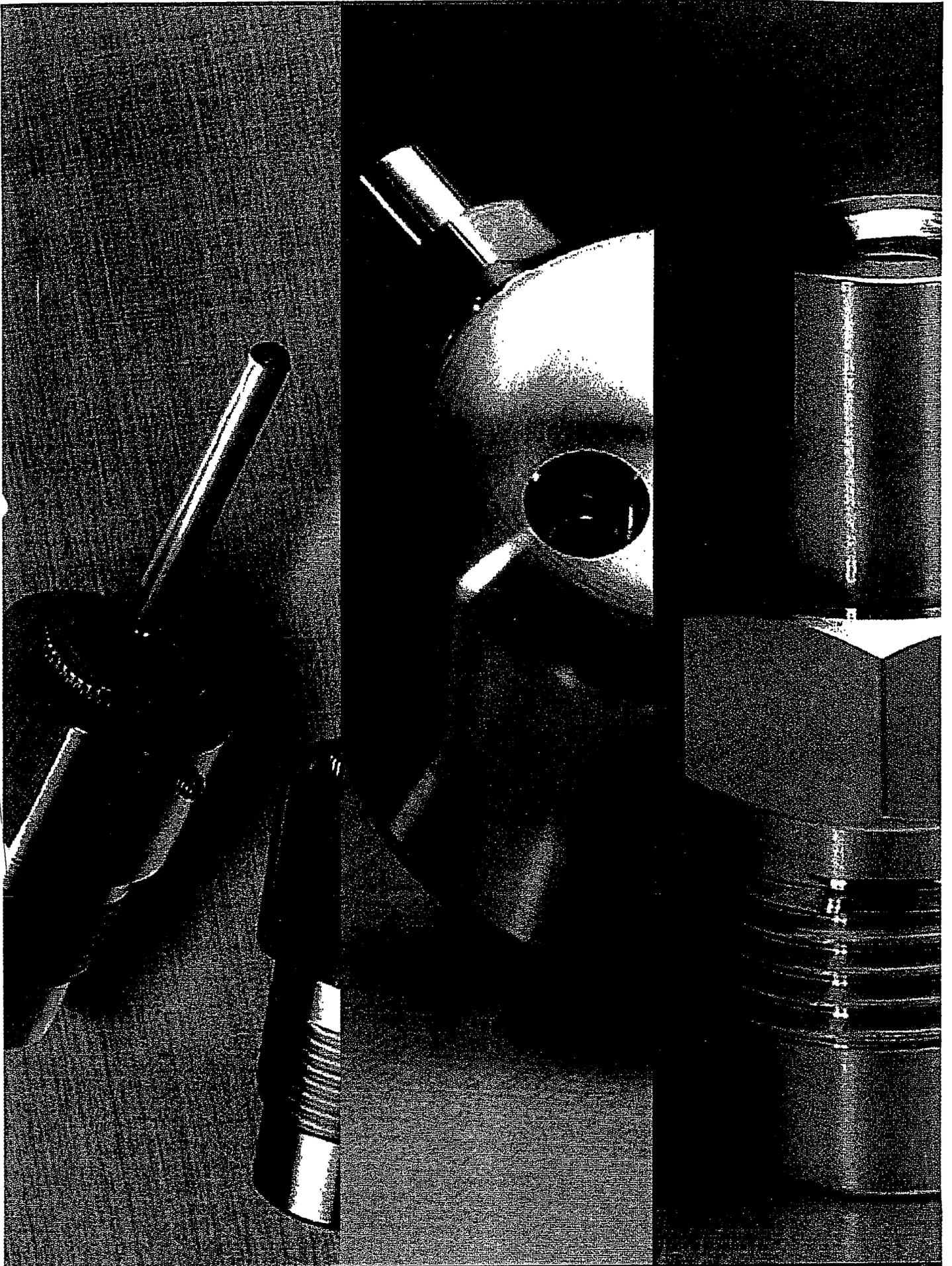
HPLC First Aid Kits™ are equipped with a complete set of precision components for your Beckman/Altex pump, giving you rapid access to the parts you need to keep your system running. Fittings Kits contain a useful selection of fittings, unions and plugs (see pages 46-47). Replacement lamps for your UV detector are guaranteed to meet or exceed OEM specifications.

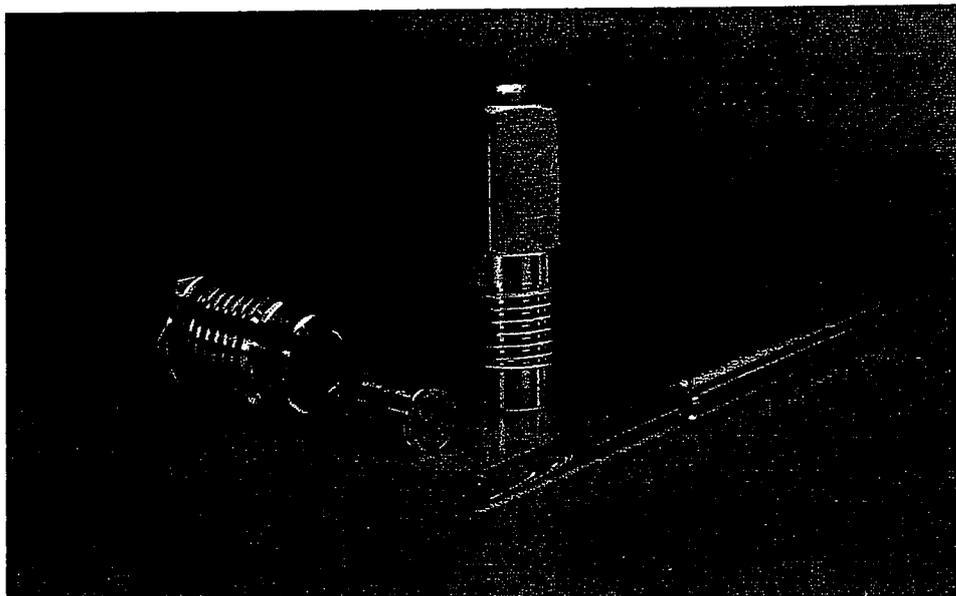
## Accessory Kits and Lamps

Type	OPTI-Part #	Description	OEM #	Price
FIRST AID KIT	22-08-01332	HPLC First Aid Kit Beckman 100A		
FIRST AID KIT	22-08-00471	HPLC First Aid Kit Beckman 110A/110B		
FIRST AID KIT	22-08-00472	HPLC First Aid Kit Beckman 112/112M		
FIRST AID KIT	22-08-00473	HPLC First Aid Kit Beckman 114/114M, 116, 126		
FIT KIT	22-08-00469	Fittings Kit (Beckman Injection Valve)		
FIT KIT	22-08-00432	Fittings Kit (Rheodyne Injection Valve)		
LAMP	22-32-01295	Lamp M-163 and M-166 Detectors	239372	



Lamp for Beckman/Altex M-163 and M-166 Detectors





OPTI-MAX® Cartridge Check Valve System and Piston for Bio-Rad

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your Bio-Rad HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



OPTI-MAX Cartridge Code Chart	
Ball Material and Cartridge Type	Cartridge Code
Stainless Steel (SS)	55
PEEK	58
Ceramic	57
Ruby/Sapphire	56

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CO in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Bio-Rad 1330, 1350 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	23-00546	OPTI-MAX Inlet Housing & Cartridge	125-0306	
OUTLET	23-00551	OPTI-MAX Outlet Housing & Cartridge	125-0307	
CARTRIDGE	10-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

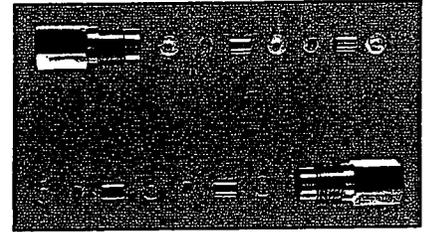
number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### Bio-Rad 1330, 1350

Type	OPTI-Part #	Description	OEM #	Price
INLET	23-38-00538	Tested Inlet	125-0306	
OUTLET	23-38-00543	Tested Outlet	125-0307	
REBUILD	23-38-00545	Rebuild Kit (Rebuilds 2)		

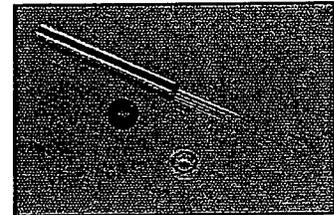


Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### Bio-Rad 1330, 1350, 1350T, 2700

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	23-36-00514	OPTI SEAL (MILWAUKEE) Piston Seal	125-0308	
OPTI SEAL	23-36-00515	OPTI SEAL (MILWAUKEE) Piston Seal 10/PK		
PTFE	23-36-00531	PTFE PTFE Piston Seal	125-0307	
PTFE 10/PK	23-36-00532	PTFE PTFE Piston Seal 10/PK		
SEAL	23-34-00527	Seal (Isolation Ring)	125-0303	
PISTON	23-34-00530	Piston (1330, 1350, 1350T Only)	125-0304	



BIO-RAD

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Bio-Rad pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

### Bio-Rad 1330, 1350

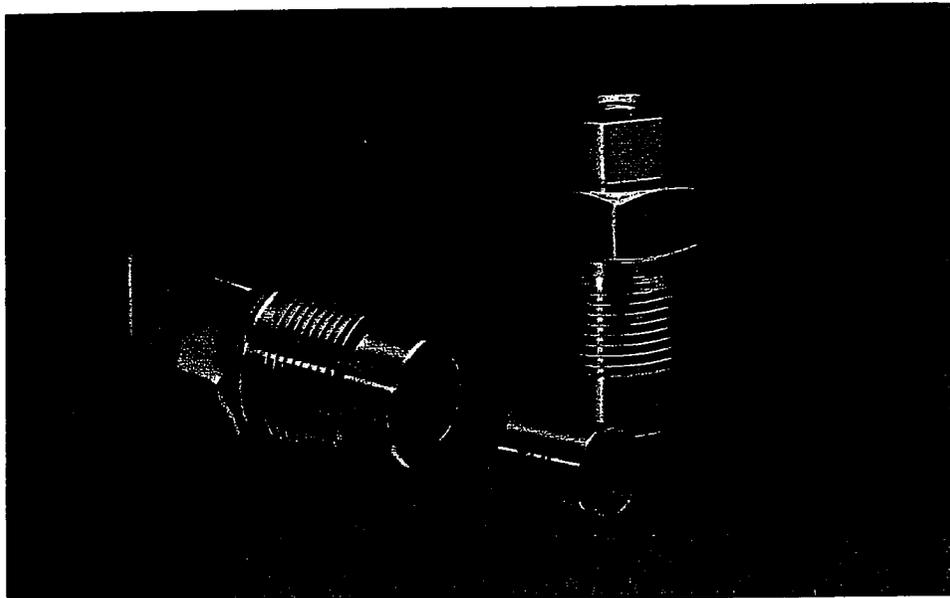
Type	OPTI-Part #	Description	Price
FIRST AID KIT	23-08-00526	HPLC First Aid Kit	
FIT KIT	23-08-00432	Fittings Kit	

# BISCHOFF

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Bischoff HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See pg. 41 for more information.



OPTI-MAX® Cartridge Check Valve System for Bischoff



## OPTI-MAX Cartridge Code Chart

	STAINLESS STEEL	PEEK
INLET	24	24
OUTLET	24	24
CARTRIDGE	10	10

Arrows point from the chart to the tables on the right. The chart also includes labels for 'Ceramic' and 'Ruby/Sapphire' ball and seat sets.

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Bischoff 2200, Anspec SM909, Alcott Micromeritics 760 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	24CC00576	OPTI-MAX Inlet Housing & Cartridge	2200-0220	
OUTLET	24CC00581	OPTI-MAX Outlet Housing & Cartridge	2200-0230	
CARTRIDGE	10CC02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

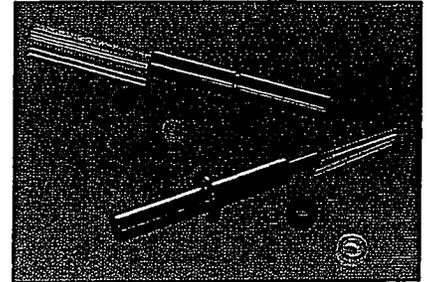
number from this chart to select the cartridge type you need.

### All Above Pump Models, Microbore Type FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	24CC00585	OPTI-MAX Inlet Housing & Cartridge	2200-0120	
OUTLET	24CC00589	OPTI-MAX Outlet Housing & Cartridge	2200-0130	
CARTRIDGE	10CC02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/PK		

number from this chart to select the cartridge type you need.

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.



## Seals and Pistons

### Bischoff 2200, Anspec SM909, Alcott Micromeritics 760

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	24-36-01297	OPTI SEAL UHF RW PE Piston Seal	2200-0213	
OPTI O/Pk	24-36-01298	OPTI SEAL UHF RW PE Piston Seal (O/Pk)		
PEB™	24-36-01300	PEB PTFE Piston Seal	2200-0212	
PEB (O/Pk)	24-36-01301	PEB PTFE Piston Seal (O/Pk)		
	24-36-00562	Seal Support Ring	2200-0211	
PISTON	24-34-00559	Piston	2200-0210	

### All Above Pump Models, Microbore Type

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	24-36-00571	OPTI SEAL UHF RW PE Piston Seal	2200-0213	
OPTI O/Pk	24-36-00572	OPTI SEAL UHF RW PE Piston Seal (O/Pk)		
PEB™	24-36-00573	PEB PTFE Piston Seal	2200-0212	
PEB (O/Pk)	24-36-00575	PEB PTFE Piston Seal (O/Pk)		
	24-36-00574	Seal Support Ring	2200-0211	
PISTON	24-34-00562	Piston	2200-0210	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Bischoff pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

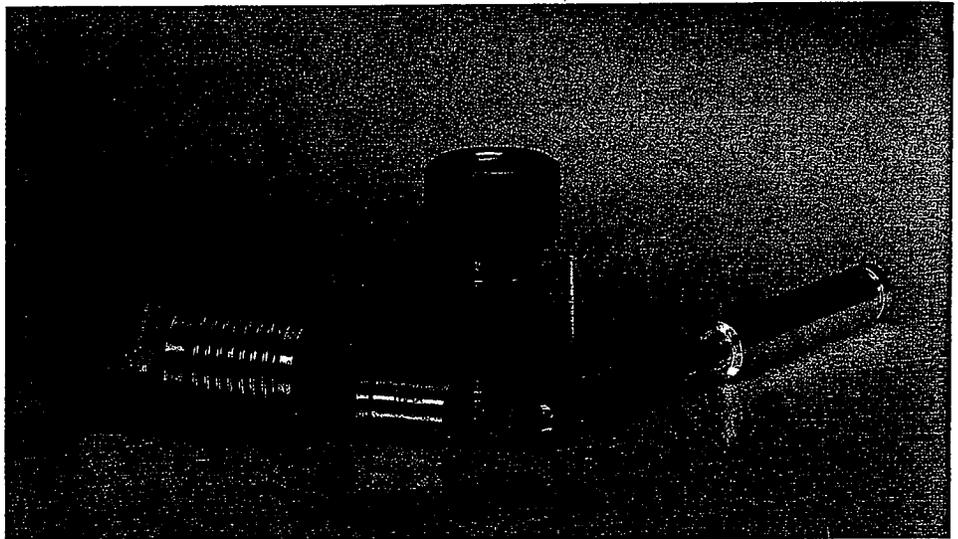
## Accessory Kits

### Analytical Bischoff 2200, Anspec SM909, Alcott Micromeritics 760

Type	OPTI-Part #	Description	Price
FIRST AID KIT	24-08-00557	HPLC First Aid Kit	
FIT KIT	24-08-00432	Fittings Kit	

### All Above Pump Models, Microbore Type

Type	OPTI-Part #	Description	Price
FIRST AID KIT	24-08-00558	HPLC First Aid Kit	



OPTI-MAX® Cartridge Check Valve System and Piston for Dionex

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your Dionex HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. OPTI-MAX cartridges are available in PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



### OPTI-MAX Cartridge Code Chart

We recommend the PEEK/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000

Type	OPTI-Part #	Description	OEM #	Price
INLET	2500-00613	OPTI-MAX Inlet Housing & Cartridge All Above Pump Models	38273	
OUTLET (Old Style)	2500-00616	OPTI-MAX Outlet Housing & Cartridge DQP, GPM-1, DRP	38272	
OUTLET (New Style)	2500-00612	OPTI-MAX Outlet Housing & Cartridge GPM-2, DXP, AGP (Analytical), 2000, 4000	42761	
CARTRIDGE	1000-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

← number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000

Type	OPTI-Part #	Description	OEM #	Price
INLET	25-38-00605	Tested Inlet, DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000	38273	
OUTLET	25-38-00607	Tested Outlet (Old Style), DQP, GPM-1, DRP	38272	
OUTLET	25-38-00610	Tested Outlet (New Style), GPM-2, DXP, AGP (Analytical), 2000, 4000	42761	
REBUILD	25-38-00609	Rebuild Kit (Rebuilds 2), DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000		

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Pistons and Seals

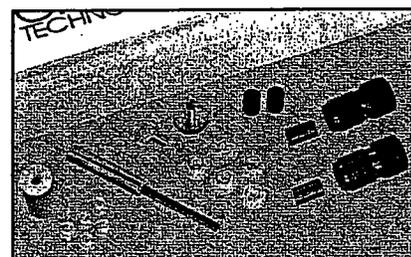
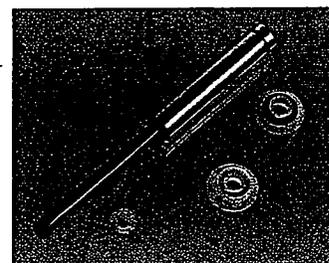
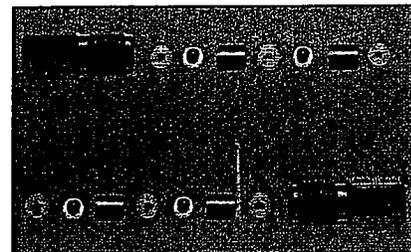
### GP40/IP20 (Analytical); DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	25-36-00597	OPTI SEAL UHMWPE Piston Seal, Hastelloy, 2000, 4000	36959	
OPTI O-RING	25-36-00598	OPTI SEAL UHMWPE Piston Seal, Hastelloy, 2000, 4000	36960	
SEAL	25-36-00599	UHMWPE Piston Seal (Elastomer O-Ring)	36886	
SEAL 10/PL	25-36-00600	UHMWPE Piston Seal (Elastomer O-Ring) 10/PL		
BACKUP SEAL	25-36-00603	Backup Seal	36904	
O-RING	25-36-00602	O-Ring Seal 10/PL		
PISTON	25-34-00596	Improved Ruby Piston For All Above Pumps Except GP40/IP20 Analytical	36904	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Dionex pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

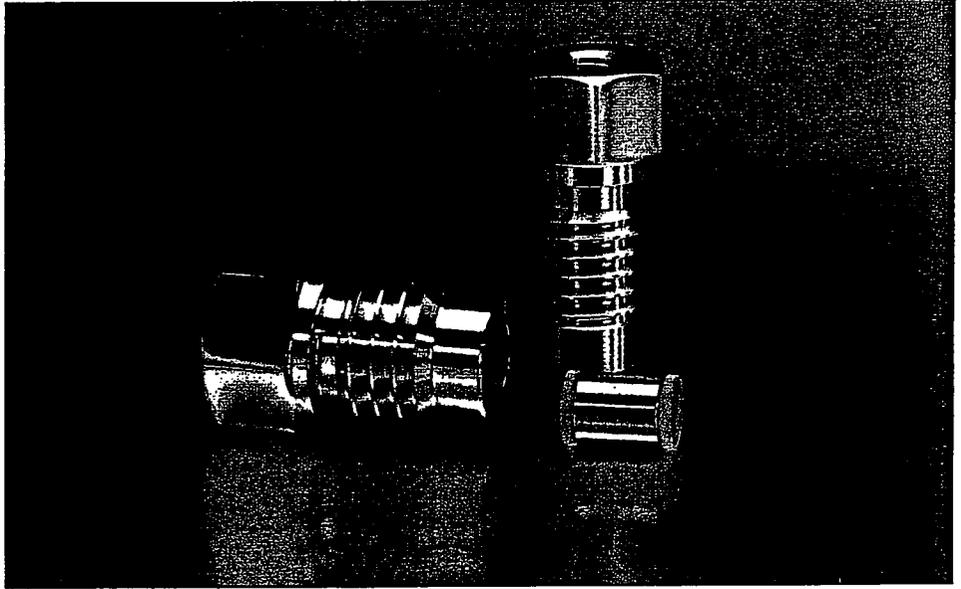
Type	OPTI-Part #	Description	Price
1st AID KIT	25-08-00594	HPLC First Aid Kit, DQP, GPM-1, DRP	
1st AID KIT	25-08-00595	HPLC First Aid Kit, GPM-2, DXP, AGP (Analytical), 2000, 4000	
FIT KIT	25-08-00593	Fittings Kit, DQP, GPM-1, DRP, GPM-2, DXP, AGP (Analytical), 2000, 4000	



HPLC First Aid Kit™

# GILSON/RAININ

GILSON/RAININ



OPTI-MAX® Cartridge Check Valve System for Gilson/Rainin

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your Gilson/Rainin HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



**OPTI-MAX  
Cartridge Code Chart**

Material	Cartridge Code	Part #
SS	CC	26000638
PEEK	CC	26000647

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### 5, 10 & 25 mL S/SC Heads [Gilson, Rainin HP, HPX, HPXL, SD 200/300]

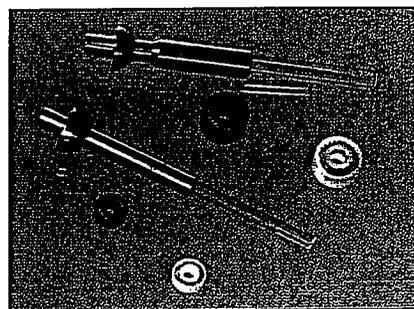
Type	OPTI-Part #	Description	OEM #	Price
INLET	26000638	OPTI-MAX Inlet Housing & Cartridge	Gilson: 3645242 Rainin: E50151 & R007101616	
OUTLET	26000647	OPTI-MAX Outlet Housing & Cartridge	Gilson: 3645245 Rainin: E50121 & R007101617	
CARTRIDGE	1000002004	OPTI-MAX Replacement Cartridges 3/8" Ball 2/Pk		

number from this chart to select the cartridge type you need.

Gilson/Rainin pumps manufactured before 1985 (S Type) bear either an "S" or no marking on the pump head. Pumps manufactured subsequent to 1985 (SC Type) are identified with an "SC" on the pump head.

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons



### 10 mL S/SC Heads [Gilson, Rainin HP, HPX, HPXL, SD 200/300]

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	26-36-00631	OPTI SEAL (UHMW PE) Piston Seal	Gilson: 41E0801 Rainin: 6093M65	
OPTI SEAL	26-36-00633	OPTI SEAL (UHMW PE) Piston Seal 10/Pk		
HTB™	26-36-00630	HTB PTFE Piston Seal	Gilson: 41E0801 Rainin: 6093M65	
HTB 10/PK	26-36-00631	HTB PTFE Piston Seal 10/Pk		
PISTON	26-36-00624	Piston 10mL SC HEAD (AINP)		

### 5 mL S/SC Heads [Gilson, Rainin HP, HPX, HPXL, SD 200/300]

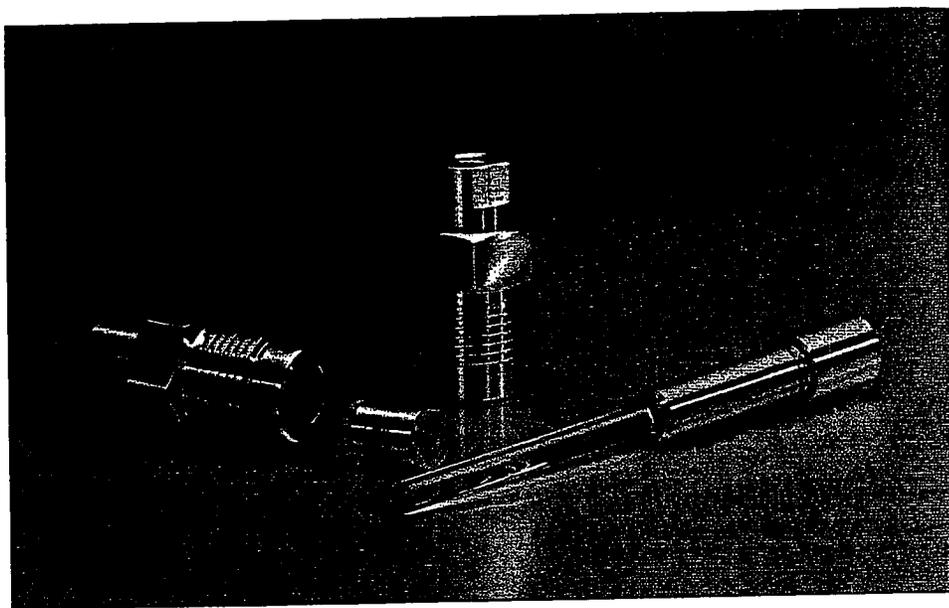
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	26-36-00631	OPTI SEAL (UHMW PE) Piston Seal	Gilson: 41E0801 Rainin: 6093M65	
OPTI SEAL	26-36-00633	OPTI SEAL (UHMW PE) Piston Seal 10/Pk		
HTB™	26-36-00630	HTB PTFE Piston Seal	Gilson: 41E0801 Rainin: 6093M65	
HTB 10/PK	26-36-00631	HTB PTFE Piston Seal 10/Pk		
PISTON	26-36-00624	Piston 5mL SC HEAD (AINP)		

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Gilson/Rainin pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

### 10 mL & 5 mL SC Heads [Gilson, Rainin HP, HPX, HPXL, SD 200/300]

Type	OPTI-Part #	Description	Price
FIRST AID KIT	26-08-00622	HPLC First Aid Kit 10 mL SC Type Head	
FIRST AID KIT	26-08-00621	HPLC First Aid Kit 5 mL SC Type Head	
FIT KIT	26-08-00621	Fittings Kit, For Pumps with 5/10 mL SC Heads (Rheodyne Injection Valve)	

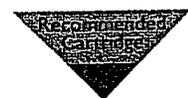


OPTI-MAX® Cartridge Check Valve System and Piston for Gynkotek

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your Gynkotek HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



### OPTI-MAX Cartridge Code Chart



We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Gynkotek 300, M480, Analytical and Microbore FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	4400-00451	OPTI-MAX Inlet Housing & Cartridge	5005-3200	
OUTLET	4400-00460	OPTI-MAX Outlet Housing & Cartridge	5005-3100	
CARTRIDGE	1000-02004	OPTI-MAX Replacement Cartridges: 1/16" Ball, 2/Pk		

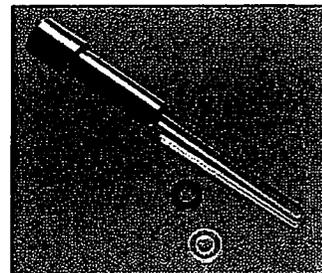
number from this chart to select the cartridge type you need.

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### Gynkotek 300, M480, Analytical Only

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL C	44-16-00437	OPTI SEAL CHIMWPE Piston Seal	766-0904	
OPTI SEAL	44-16-00439	OPTI SEAL CHIMWPE Piston Seal (OP)		
PISTON	44-34-00434	Sapphire Piston	2267-0032	



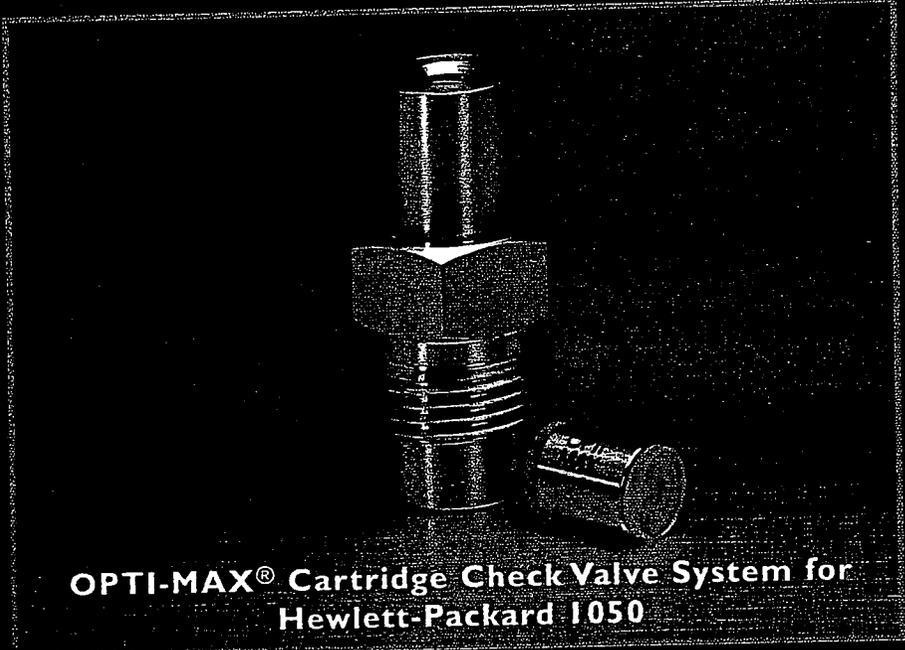
Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Gynkotek pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

### Gynkotek 300, M480, Analytical Only

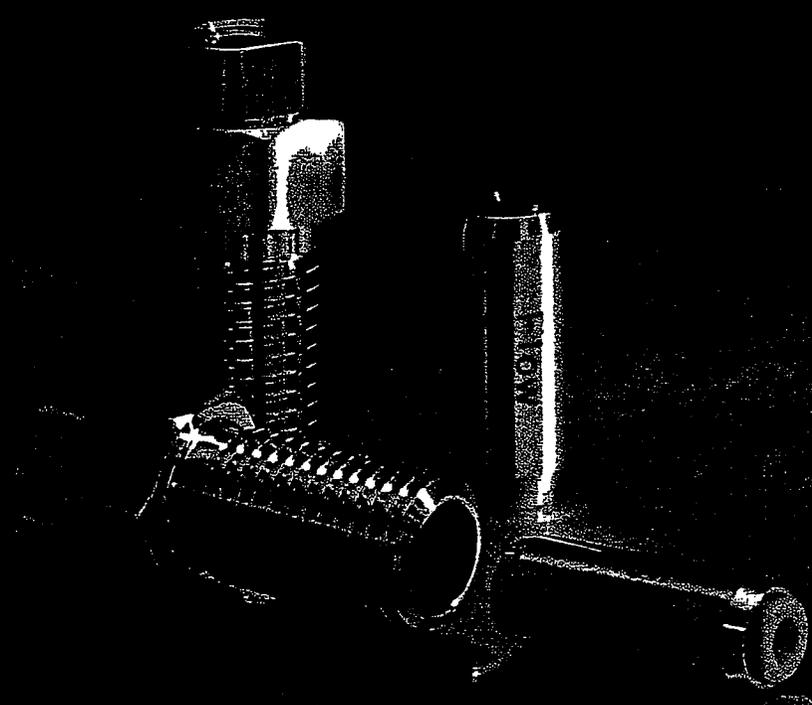
Type	OPTI-Part #	Description	Price
FIRST AID KIT	44-08-00433	HPLC First Aid Kit	
FIT KIT	44-08-00432	Fittings Kit, All Gynkotek	

HEWLETT-PACKARD



**OPTI-MAX® Cartridge Check Valve System for Hewlett-Packard 1050**

HEWLETT-PACKARD



**Replacement Cartridge Check Valve System for Hewlett-Packard 1090**

# HEWLETT-PACKARD

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Hewlett-Packard HPLC system. Universal OPTI-MAX cartridges fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges come in either stainless steel (SS) or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



## OPTI-MAX® Cartridge Check Valve

HP 1050, 1100 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
OUTLET	27-00-01330	OPTI-MAX Outlet Housing & Cartridge	01018-60008	
CARTRIDGE	1060-02004	OPTI-MAX Replacement Cartridges 1/8" Ball 2/Pk		

### OPTI-MAX Cartridge Code Chart

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the left. See page 41 for more information.

HEWLETT-PACKARD

For the HP-1090, we offer a cartridge-based check valve system designed as a direct replacement for OEM cartridge check valves, and guaranteed to meet or exceed OEM specifications.

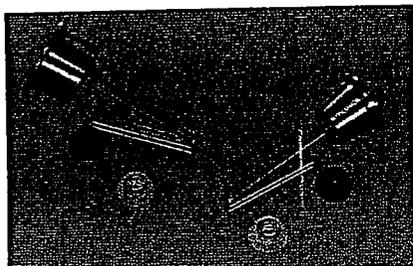
## Standard Cartridge Check Valves

HP 1090

Type	OPTI-Part #	Description	OEM #	Price
INLET	27-38-00680	Tested Inlet Housing & Cartridge	79835-25711 & 79835-67101	
OUTLET	27-38-00682	Tested Outlet Housing & Cartridge	79835-25211 & 79835-67101	
CARTRIDGE	27-38-00672	Replacement Cartridges 7/Pk	79835-67101	

# HEWLETT-PACKARD

Replacement seals and plungers from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.



Seals and Plungers for HP 1050/1100, and HP 1090

## Seals and Plungers

### HP 1050, 1100

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	27-36-01571	OPTI SEAL, HP 1050/1100 Plunger Seal	5062-8515	
OPTI SEAL	27-36-01572	OPTI SEAL, HP 1050/1100 Plunger Seal 10/Pk	5062-8516	
PLUNGER	27-36-00388	Optimize Plunger	5062-243	

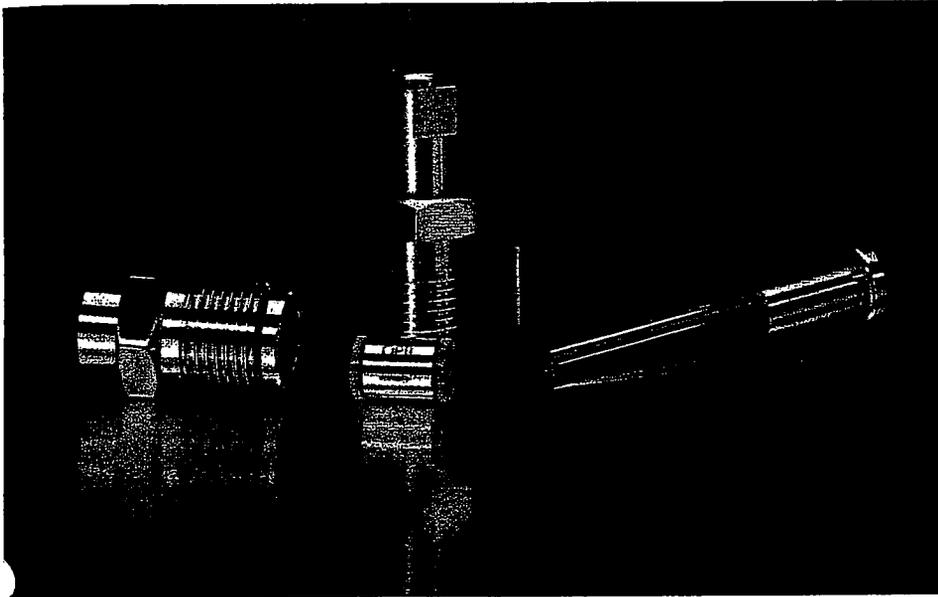
### HP 1090

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	27-36-00665	OPTI SEAL, HP 1090 Plunger Seal	5062-249	
OPTI SEAL	27-36-00666	OPTI SEAL, HP 1090 Plunger Seal 10/Pk	5062-249A	
PLUNGER	27-36-00665	Optimize Plunger	5062-067	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Hewlett-Packard pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

Type	OPTI-Part #	Description	Price
FIRST AID KIT	27-08-00656	HPLC First Aid Kit, HP 1050/1100	
FIRST AID KIT	27-08-00657	HPLC First Aid Kit, HP 1090	
FIT KIT	27-08-00656	Fittings Kit, HP 1050, 1090, 1100	



OPTI-MAX® Cartridge Check Valve System and Piston for Hitachi 655, L-6000, L-6200, L-6200A

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Hitachi HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See pg. 41 for more information.



## OPTI-MAX® Cartridge Check Valve

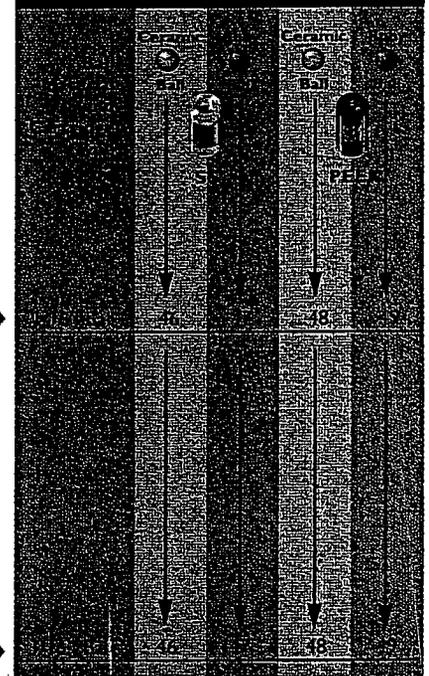
### Hitachi 655, L-6000, L-6200, L-6200A FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	2800000703	OPTI-MAX Inlet Housing & Cartridge	885-1330	
OUTLET	2800000712	OPTI-MAX Outlet Housing & Cartridge	885-1331	
CARTRIDGE	10000002004	OPTI-MAX Replacement Cartridges - 1/16" Ball - PEEK		

### Hitachi L-7100 (LaChrom®)

Type	OPTI-Part #	Description	OEM #	Price
INLET	28000002093	OPTI-MAX Inlet Housing & Cartridge	810-1004	
OUTLET	28000002094	OPTI-MAX Outlet Housing & Cartridge	810-1005	
CARTRIDGE	10000002004	OPTI-MAX Replacement Cartridges - 1/16" Ball - PEEK		

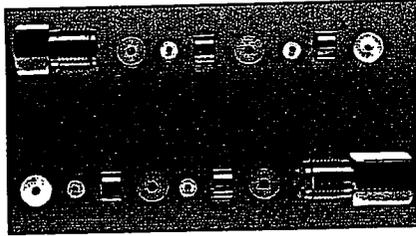
## OPTI-MAX Cartridge Code Chart



We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the left. See page 41 for more information.

HITACHI

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

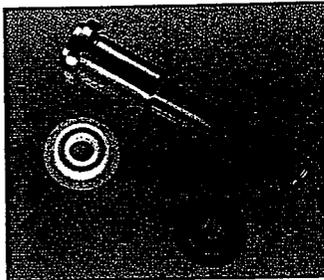


## Standard Check Valves

### Hitachi 655, L-6000, L-6200, L-6200A

Type	OPTI-Part #	Description	OEM #	Price
INLET	28-38-00694	Tested Inlet	885-1230	
OUTLET	28-38-00699	Tested Outlet	885-1331	
REBUILD	28-38-00701	Rebuild Kit (Rebuilds 2)		

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.



## Seals and Pistons

### Hitachi 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom®)

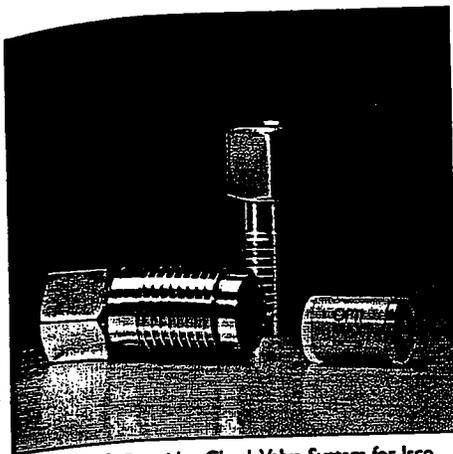
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	28-36-00680	OPTI SEAL (EMV) Piston Seal	655-1080	
OPTI O/R	28-36-00682	OPTI O/R (EMV) Piston Seal O/R		
PTB	28-36-00688	PTB-PTFE Piston Seal	655-1080	
PTB O/R	28-36-00689	PTB-PTFE Piston Seal O/R		
OPTI SEAL	28-36-00681	OPTI SEAL Piston Seal (Sapphire)		
OPTI O/R	28-36-00683	OPTI O/R Piston Seal (Sapphire) Spring 194C		
PISTON	28-34-00685	Sapphire Piston	810-1033	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Hitachi pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

### Hitachi 655, L-6000, L-6200, L-6200A

Type	OPTI-Part #	Description	Price
FIRST AID KIT	28-08-00684	HPLC First Aid Kit	
FIT KIT	28-08-00683	Fittings Kit	



OPTI-MAX® Cartridge Check Valve System for Isco

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Isco HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.

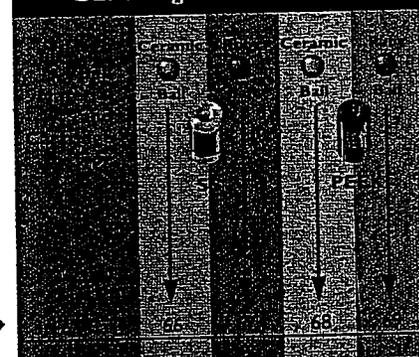
## OPTI-MAX® Cartridge Check Valve

### Isco 2300, 2350

Type	OPTI-Part #	Description	OEM #	Price
INLET	29-36-01343	OPTI-MAX Inlet Housing & Cartridge	60-2253-240	
OUTLET	29-36-01344	OPTI-MAX Outlet Housing & Cartridge	60-2253-209	
CARTRIDGE	10-36-02005	OPTI-MAX Replacement Cartridges 3/16" Ball, 2/Pk		



### OPTI-MAX Cartridge Code Chart



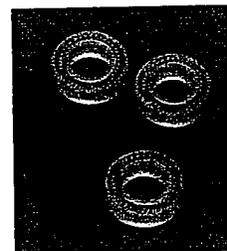
We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the left. See page 41 for more information.

Replacement seals from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Piston Seals

### Isco 2300, 2350

Type	OPTI-Part #	Description	OEM #	Price
OPTI-SEAL	29-36-01305	OPTI-SEAL PEEK/PEEK Secondary	209-2230-01	
OS, 10/PK	29-36-01305	OPTI-SEAL PEEK/PEEK Secondary, 10/PK		
ITB™	29-36-00723	ITB PEEK Piston Seal Primary	209-2230-01	
ITB, 10/PK	29-36-00724	ITB PEEK Piston Seal Primary, 10/PK		
OPTI-SEAL	29-36-01307	OPTI-SEAL PEEK/PEEK Secondary	209-2230-01	
OS, 10/PK	29-36-01307	OPTI-SEAL PEEK/PEEK Secondary, 10/PK		
ITB™	29-36-01303	ITB PEEK Piston Seal Secondary	209-2090-12	
ITB, 10/PK	29-36-01304	ITB PEEK Piston Seal Secondary, 10/PK		

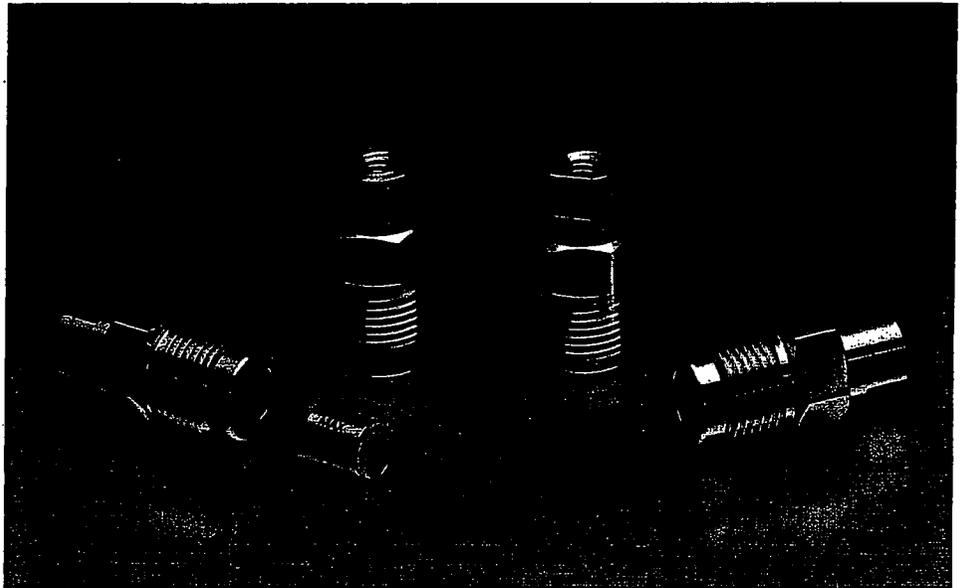


# JASCO

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Jasco HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See pg. 41 for more information.



OPTI-MAX® Cartridge Check Valve System for Jasco BIP-I (left) and Jasco 880/980 Series (right)



## OPTI-MAX Cartridge Code Chart

JASCO

Material	Cartridge Code	Material	Cartridge Code
SS	50	SS	50
PEEK	55	PEEK	55

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Jasco BIP-I FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	426001038	OPTI-MAX Inlet Housing & Cartridge	6260-H101A	
OUTLET	426001043	OPTI-MAX Outlet Housing & Cartridge	6260-H102A	
CARTRIDGE	106002004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk		

number from this chart to select the cartridge type you need.

### Jasco 880/980 Series FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	426001544	OPTI-MAX Inlet Housing & Cartridge	6560-405A	
OUTLET	426001546	OPTI-MAX Outlet Housing & Cartridge	6560-404A	
CARTRIDGE	106002004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk		

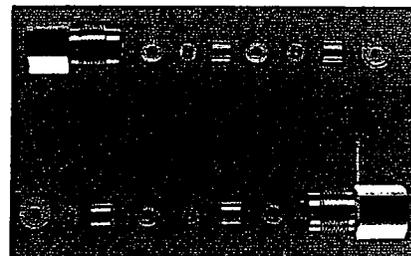
number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### Jasco BIP-I

Type	OPTI-Part #	Description	OEM #	Price
INLET	42-38-01016	Tested Inlet	6260-H101A	
OUTLET	42-38-01021	Tested Outlet	6260-H102A	
REBUILD	42-38-01023	Rebuild Kit (Rebuilds 2 BIP-I Or 880/980)		

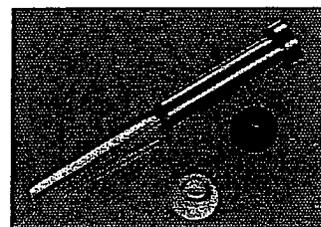


Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### Jasco BIP-I, 880/980 Series

Type	OPTI-Part #	Description	OEM #	Price
ORING SEAL	42-36-01313	ORING SEAL (BIP-I, 880/980)	6560-H131A	
ORING SEAL	42-36-01318	ORING SEAL (BIP-I, 880/980)	6560-H132A	
PISTON	42-36-01355	PISTON (BIP-I, 880/980)	6560-H135A	
PISTON	42-36-01356	PISTON (BIP-I, 880/980)	6560-H136A	
PISTON	42-36-01357	PISTON (BIP-I, 880/980)	6560-H137A	
PISTON	42-36-01358	PISTON (BIP-I, 880/980)	6560-H138A	
PISTON	42-36-01359	PISTON (BIP-I, 880/980)	6560-H139A	
PISTON	42-34-01354	Sapphire Piston	2105-0005A & 6560-H107A	



Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Jasco pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

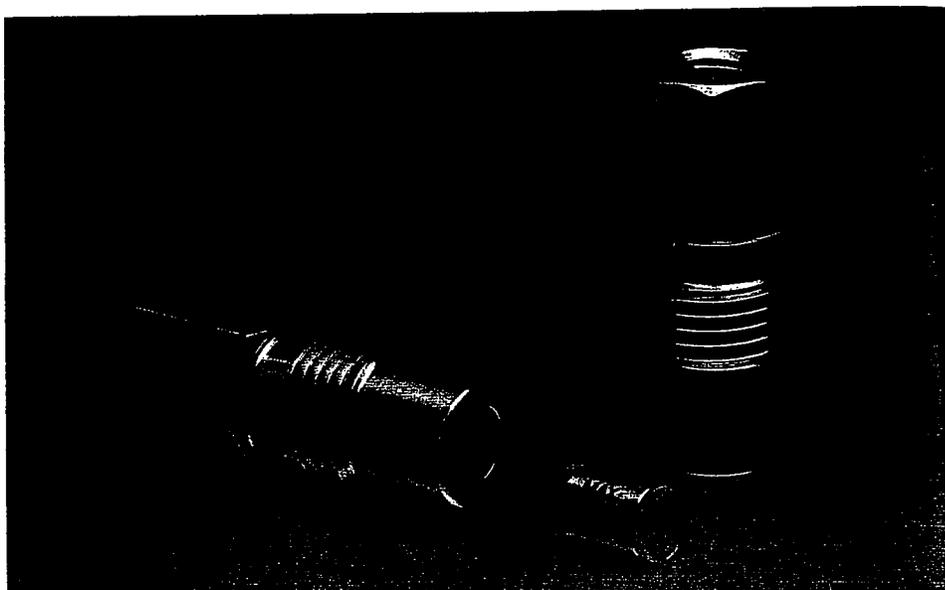
## Accessory Kits

### Jasco BIP-I, 880/980 Series

Type	OPTI-Part #	Description	Price
FIRST AID KIT	42-08-01348	HPLC First Aid Kit (BIP-I)	
FIRST AID KIT	42-08-02047	HPLC First Aid Kit (880/980 Series)	
FIT KIT	42-08-00913	Fittings Kit (Valco Injection Valve)	
FIT KIT	42-08-00432	Fittings Kit (Rheodyne Injection Valve)	

# LDC/MILTON ROY

LDC/MILTON ROY



OPTI-MAX® Cartridge Check Valve System for LDC/Milton Roy

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your LDC/Milton Roy, Minimetric, Minipump, Constametric, and IBM LC-9660 HPLC systems. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



**OPTI-MAX Cartridge Code Chart**

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### LDC/Milton Roy, All Analytical

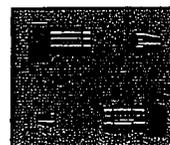
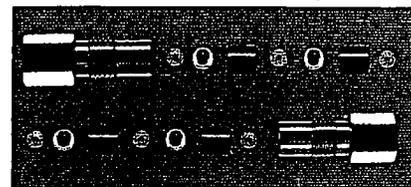
Type	OPTI-Part #	Description	OEM #	Price
INLET	3112-00759	OPTI-MAX Inlet Housing & Cartridge	900947001	
OUTLET	3112-00764	OPTI-MAX Outlet Housing & Cartridge	900947002	
CARTRIDGE	1000-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

number from this chart to select the cartridge type you need.

# LDC/MILTON ROY

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

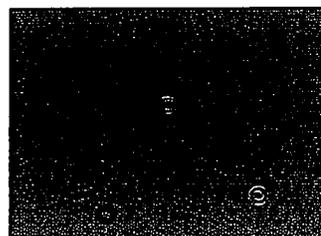
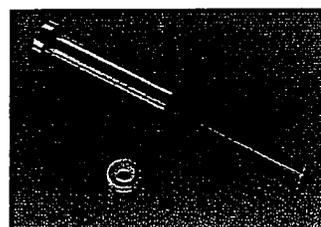


### LDC/Milton Roy, All Analytical

Type	OPTI-Part #	Description	OEM #	Price
SUCTION	31-38-00735	Tested Suction Check Valve	900947001	
DISCHARGE	31-38-00736	Tested Discharge Check Valve	900947002	
REBUILD	31-38-00757	Rebuild Kit (Rebuilds 1)	900517	
	31-24-00735	1/8" Nut & Ferrule For Suction Tube	1960066975	
	31-24-00736	1/16" Nut & Ferrule For Discharge Tube	1960066975	

Replacement seals and plungers from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Plungers



Seal Replacement Kits

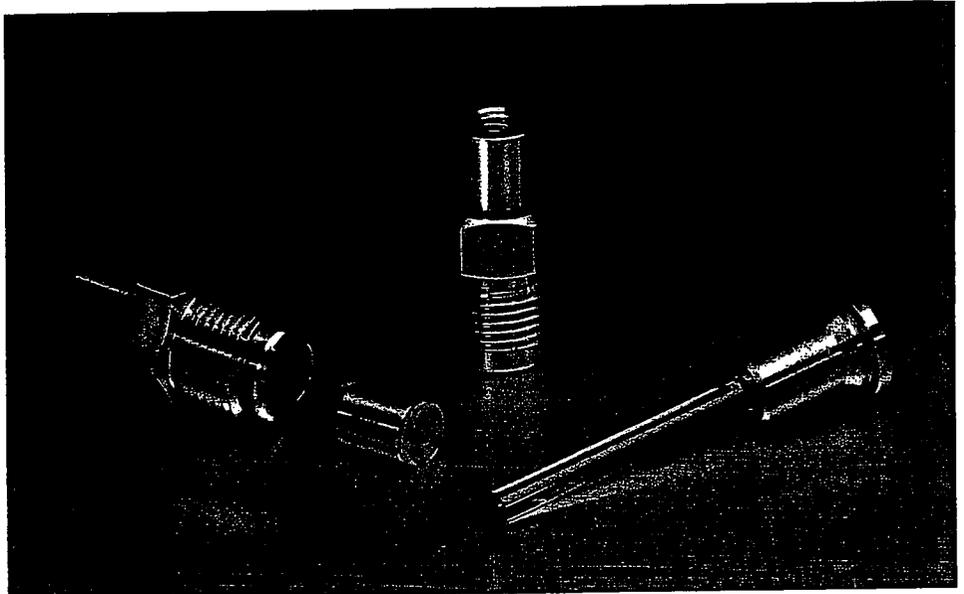
### LDC/Milton Roy, All Analytical

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	31-36-00750	OPTI SEAL HPLC Minipump	801598	
OPTI SEAL	31-36-00751	OPTI SEAL HPLC Minipump	801598	
	31-36-00752	Replacement Kit OPTI SEAL	801598	
IB SEAL	31-36-00753	IB SEAL HPLC Minipump	801598	
IB SEAL	31-36-00754	IB SEAL HPLC Minipump	801598	
	31-36-00755	Replacement Kit IB Seal	801598	
GOLD SEAL	31-36-00756	Gold Seal HPLC Minipump	801598	
GOLD SEAL	31-36-00757	Gold Seal HPLC Minipump	801598	
	31-36-00758	Replacement Kit Gold Seal	801598	
PLUNGER	31-34-00738	Fittings Plunger	801598	
SPRING	31-34-00739	Crosshead Spring, Cosmometric II Minipump	2160282000	
SPRING	31-34-00740	Crosshead Spring, Minipump	204040	

Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your LDC/Milton Roy pump, giving you rapid access to the parts you need to keep your system running. Fittings Kits contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about these kits. Replacement lamps for your UV detector are guaranteed to meet or exceed OEM specifications.

## Accessory Kits and Lamps

Type	OPTI-Part #	Description	OEM #	Price
1st AID KIT	31-08-00734	HPLC First Aid Kit All Analytical Pumps		
FIT KIT	31-08-00733	Fittings Kit		
LAMP	31-12-0129	Deuterium Lamp Spectromonitor III & D 3100 & 4000 Series	108035	



OPTI-MAX® Cartridge Check Valve System and Piston for LKB

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your LKB HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



**OPTI-MAX Cartridge Code Chart**

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

LKB 2150, 2248 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	32 CC-00787	OPTI-MAX Inlet Housing & Cartridge	80-1035-19	
OUTLET	32 CC-00787	OPTI-MAX Outlet Housing & Cartridge	80-1035-20	
CARTRIDGE	10 CC-02004	OPTI-MAX Replacement Cartridges: 1/16" Ball, 2/PK		

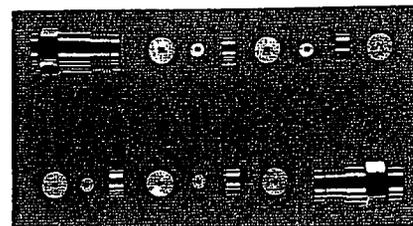
number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### LKB 2150, 2248

Type	OPTI-Part #	Description	OEM #	Price
INLET	32-38-00774	Tested Inlet	80-1035-19	
OUTLET	32-38-00779	Tested Outlet	80-1035-20	
REBUILD	32-38-00781	Rebuild Kit (Rebuilds 2)		

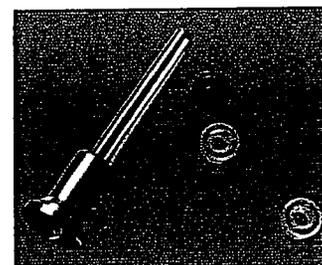


Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### LKB 2150, 2248

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	32-38-01272	OPTI SEAL (1/4" Dia) (1/2" L)	80-1035-32	
OS O/R	32-38-01258	OS O/R (1/4" Dia) (1/2" L)		
PTFE	32-38-01303	PTFE PTFE Piston Seal (1/4" Dia) (1/2" L)	80-1035-39	
PTFE O/R	32-38-01304	PTFE PTFE Piston Seal (1/4" Dia) (1/2" L)		
PISTON	32-38-00771	PTFE Piston (1/4" Dia) (1/2" L)	80-1035-37	



LKB

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your LKB pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

### LKB 2150

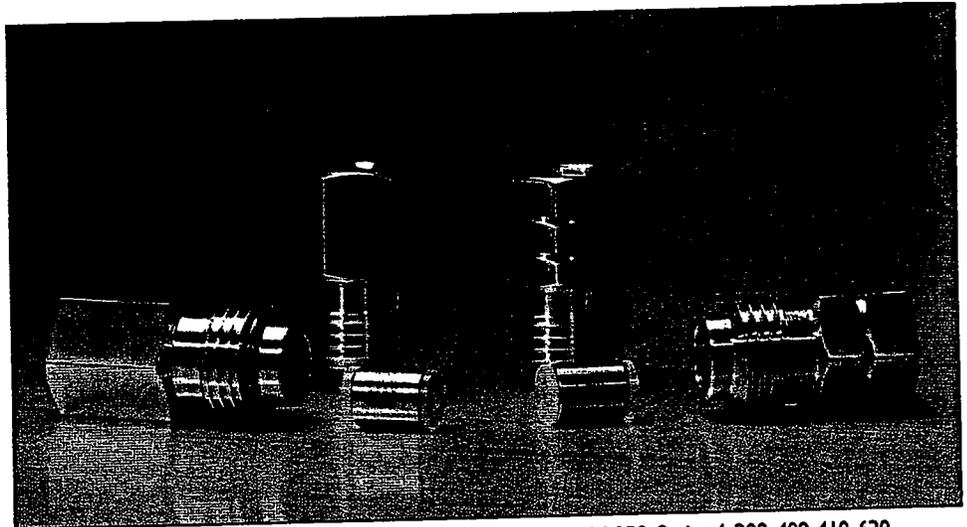
Type	OPTI-Part #	Description	Price
1st AID KIT	32-08-00770	HPLC First Aid Kit	
FIT KIT	32-08-00432	Fittings Kit	

# PERKIN-ELMER

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Perkin-Elmer HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



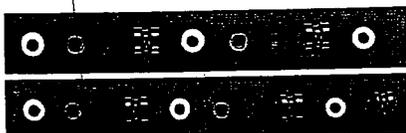
OPTI-MAX® Cartridge Check Valve System for Perkin-Elmer Model 250, Series 4, 200, 400, 410, 620, Integral 4000 (left) and Perkin-Elmer Series 1, 2, 3, 3B, 10 (right)

PERKIN-ELMER

### OPTI-MAX Cartridge Code Chart

Cartridge Code	Material	Ball	Seat
33-38-00840	SS	Ceramic	3B
33-38-00845	SS	Ceramic	10
33-38-00830	SS	Ruby/Sapphire	3B
33-38-00835	SS	Ruby/Sapphire	10

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.



## OPTI-MAX® Cartridge Check Valves

### Series 1, 2, 3, 3B, 10

Type	OPTI-Part #	Description	OEM #	Price
INLET	33-38-00840	OPTI-MAX Inlet Housing & Cartridge	0254-0546	
OUTLET	33-38-00845	OPTI-MAX Outlet Housing & Cartridge	0254-0547	
CARTRIDGE	10-38-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

← Insert the Cartridge Code number from this chart to select the cartridge type you need.

### Model 250, Series 4, 200\*, 400, 410, 620, Integral 4000\* FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	33-38-00830	OPTI-MAX Inlet Housing & Cartridge	0254-0177	
OUTLET	33-38-00835	OPTI-MAX Outlet Housing & Cartridge	0254-0197	
CARTRIDGE	10-38-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/PK		

← Insert the Cartridge Code number from this chart to select the cartridge type you need.

For those who prefer repairing check valves with rebuild kits, we offer these precision-made kits.

## Standard Check Valve Rebuild Kits (Rebuilds 2)

Type	OPTI-Part #	Description	Price
REBUILD	33-38-00828	Series 1, 2, 3, 3B, 10	
REBUILD	33-38-00821	Model 250, Series 4, 200, 400, 410, 620, Integral 4000	

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

Model 250, Series 200, 410, 620, Integral 4000, [Mfd. After 12/89]

Type	OPTI-Part #	Description	OEM #	Price
PISTON	33-34-00798	Piston, High Pressure (HP)	N260-0124	
PISTON	33-34-00797	Piston, Low Pressure (LP)	N260-0104	

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

OPTI SEAL	33-36-01201	OPTI SEAL, UHMW PE Piston Seal, HP	0990-7327	
OPTI SEAL	33-36-01002	OPTI SEAL, UHMW PE Piston Seal, HP, 10Pk		
ITB™	33-36-01299	ITB PTFE Piston Seal, HP	0990-7328	
ITB, 10/Pk	33-36-01300	ITB PTFE Piston Seal, HP, 10pk		

Series 4, 400, 410, 620, Integral 4000

OPTI SEAL	33-36-00800	OPTI SEAL, UHMW PE Piston Seal, HP	0990-7310	
OPTI SEAL	33-36-00801	OPTI SEAL, UHMW PE Piston Seal, HP, 10Pk		
ITB™	33-36-00802	ITB PTFE Piston Seal, HP	0990-7310	
ITB, 10/Pk	33-36-00803	ITB PTFE Piston Seal, HP, 10/Pk		

Series 4, 400, 410, 620, [Mfd. Before 12/89]

PISTON	33-34-00889	Piston, HP	0754-2147	
PISTON	33-34-00800	Piston, LP	0754-2149	

Series 10

PISTON	33-34-01296	Piston, HP	0754-2145	
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Series 1, 2, 3, 3B

PISTON	33-34-00809	Piston, HP	0754-0853	
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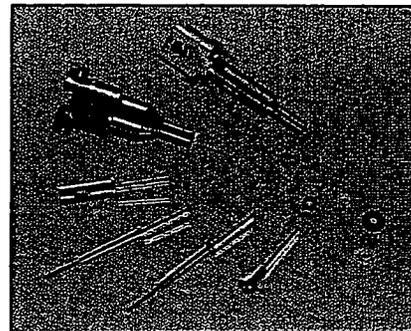
Series 100

OPTI SEAL	33-36-00804	OPTI SEAL, UHMW PE Piston Seal	N260-0108	
OPTI SEAL	33-36-00805	OPTI SEAL, UHMW PE Piston Seal, 10Pk		
ITB™	33-36-00808	ITB PTFE Piston Seal	N260-0109	
ITB, 10/Pk	33-36-00809	ITB PTFE Piston Seal, 10/Pk		

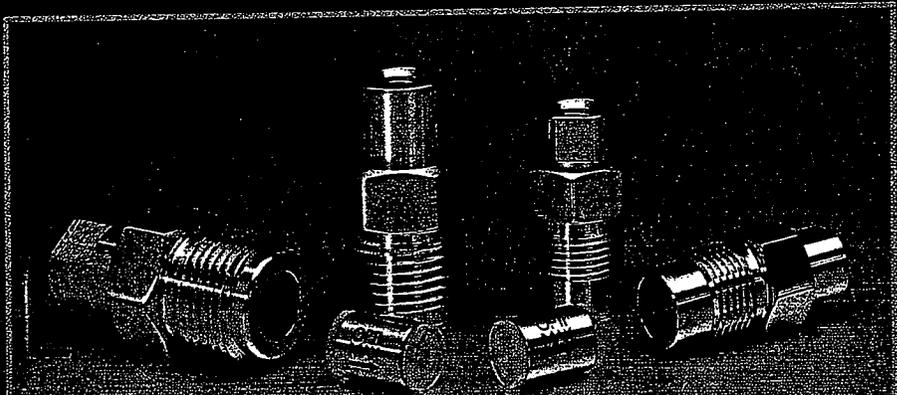
Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Perkin-Elmer pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

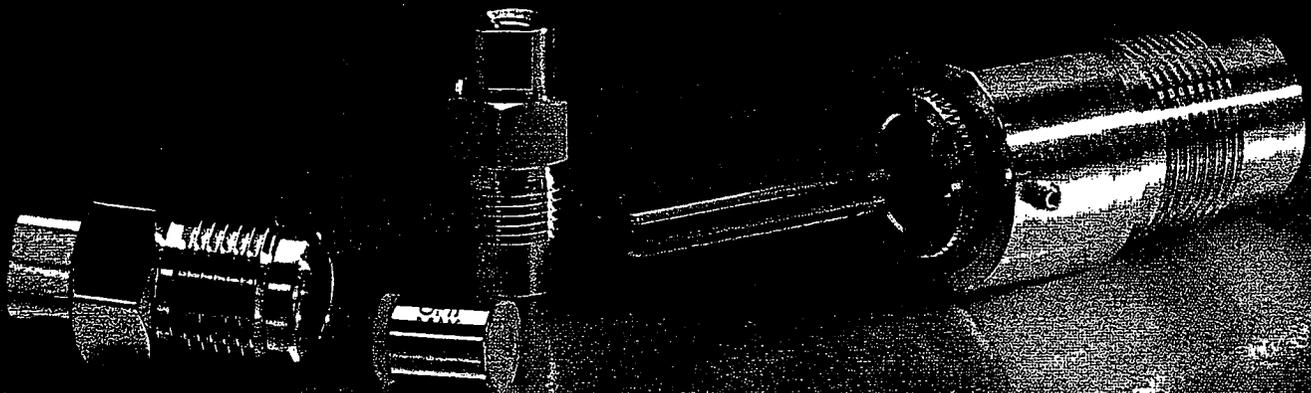
Type	OPTI-Part #	Description	Price
FIRST AID KIT	33-08-00793	HPLC First Aid Kit, Model 250, Series 200, 410, 620, Integral 4000 [Mfd. After 12/89]	
FIRST AID KIT	33-08-00794	HPLC First Aid Kit, Series 4, 400, 410, 620 [Mfd. Before 12/89]	
FIRST AID KIT	33-08-00795	HPLC First Aid Kit, Series 10	
FIRST AID KIT	33-08-00796	HPLC First Aid Kit, Series 1/2/3/3B	
FIT KIT	33-08-00621	Fittings Kit, All Perkin Elmer Pumps	



SHIMADZU



**OPTI-MAX® Cartridge Check Valve System for Shimadzu LC-10AS and LC-10AD**



**OPTI-MAX® Cartridge Check Valve System and Universal Plunger for Shimadzu LC-10AT**

SHIMADZU

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge CheckValves for your Shimadzu or ESA Model 580 HPLC pump. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

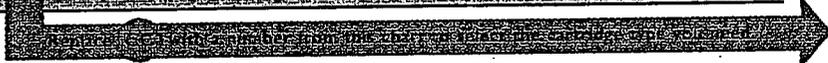
Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

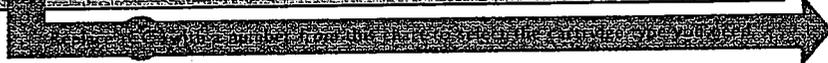
### Shimadzu LC-6A, LC-10AS FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	34700-00902	OPTI-MAX Inlet Housing & Cartridge	728-12353-91	
OUTLET	34700-00907	OPTI-MAX Outlet Housing & Cartridge	728-09054-93	
CARTRIDGE	10000-02004	OPTI-MAX Replacement Cartridges 1/8" Ball 2/Pk		



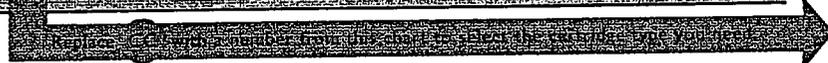
### Shimadzu LC-600/LC-9A, LC-10AD, ESA Model 580 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	34700-00885	OPTI-MAX Inlet Housing & Cartridge	728-18522-91	
OUTLET	34700-00893	OPTI-MAX Outlet Housing & Cartridge	728-18522-92	
CARTRIDGE	10000-02004	OPTI-MAX Replacement Cartridges 1/16" Ball 2/Pk		



### Shimadzu LC-10AT FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	34700-01983	OPTI-MAX Inlet Housing & Cartridge	728-32166-91	
OUTLET	34700-00893	OPTI-MAX Outlet Housing & Cartridge	728-32531-92	
CARTRIDGE	10000-02004	OPTI-MAX Replacement Cartridges 1/16" Ball 2/Pk		



### OPTI-MAX Cartridge Code Chart

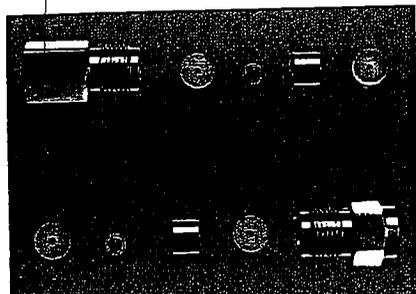
	SS	PEEK
Ceramic Ball	55	58
Ruby/Sapphire Ball	45	48
SS/Ceramic	75	78

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the left. See page 41 for more information.

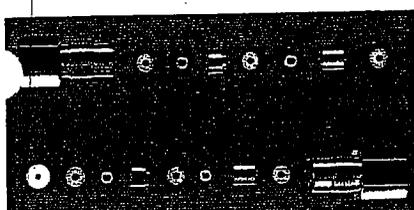
SHIMADZU

# SHIMADZU

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.



Standard Check Valves for LC-6A, LC-10AS



Standard Check Valves for LC-600/LC-9A, LC-10AD

## Standard Check Valves

### Shimadzu LC-6A, LC-10AS

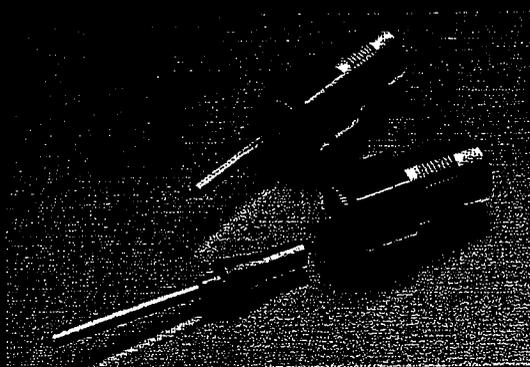
Type	OPTI-Part #	Description	OEM #	Price
INLET	34-38-00877	Tested Inlet	228-12353-91	
OUTLET	34-38-00882	Tested Outlet	228-09054-23	
REBUILD	34-38-00884	Rebuild Kit (Rebuilds 2)	228-11200-91	

### Shimadzu LC-600/LC-9A, LC-10AD

Type	OPTI-Part #	Description	OEM #	Price
INLET	34-38-00867	Tested Inlet	228-18522-91	
OUTLET	34-38-00874	Tested Outlet	228-18522-92	
REBUILD	34-38-00876	Rebuild Kit (Rebuilds 2)	228-24410-91	

SHIMADZU

## Introducing... Universal Plunger for Shimadzu LC-10AS & LC-10AT



The Universal Plunger System is now available for the Shimadzu LC-10AS and LC 10AT. Our exclusive plunger adapter allows you to use our LC-10AS plunger with both the LC-10AS and LC-10AT pumps.

If you need a new plunger for your LC-10AT, you'll need our complete LC-10AT Plunger Assembly (34-34-01997). This assembly includes a 10AS plunger and the 10AT adapter. For subsequent plunger replacements, you only need to install a new LC-10AS plunger (34-34-01345) into the universal adapter. The 10AT plunger adapter is reusable — once you have it, you only need to stock a single plunger to cover both Shimadzu pumps. Lower your replacement costs, reduce waste and minimize plunger inventory with the Universal Plunger System from Optimize.

Replacement seals and plungers from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Plungers

### Shimadzu LC-6A

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	34-36-00863	OPTI SEAL UHMW-PE Plunger Seal	228-18745-00	
OPTI 10/PK	34-36-00865	OPTI SEAL UHMW-PE Plunger Seal 10/Pk		
PTFE	34-36-00863	PTFE PTFE Plunger Seal	228-18745-00	
PTFE 10/Pk	34-36-00864	PTFE PTFE Plunger Seal 10/Pk		
PLUNGER	34-34-00853	Apparel Plunger	228-18745-00	

### Shimadzu LC-600/LC-9A, LC-10AD, ESA Model 580

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	34-36-00855	OPTI SEAL UHMW-PE Plunger Seal	228-18745-00	
OPTI 10/PK	34-36-00856	OPTI SEAL UHMW-PE Plunger Seal 10/Pk		
SEAL	34-36-00857	UHMW-PE/Elastomer-Enhanced Seal	228-18745-00	
SEAL 10/PK	34-36-00858	UHMW-PE/Elastomer-Enhanced Seal 10/Pk		
PLUNGER	34-34-00853	Apparel Plunger	228-18745-00	

### Shimadzu LC-10AS, LC-10AT

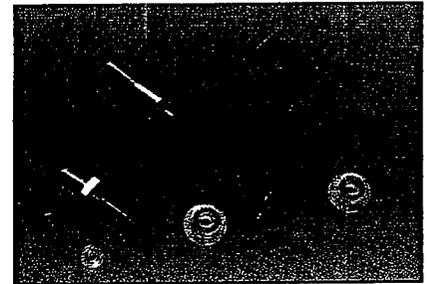
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	34-36-00864	OPTI SEAL UHMW-PE Plunger Seal	228-18745-00	
OPTI 10/PK	34-36-00865	OPTI SEAL UHMW-PE Plunger Seal 10/Pk		
OPTI SEAL	34-36-00865	OPTI SEAL UHMW-PE Back-Up Seal	228-28499-00	
OPTI 10/PK	34-36-00866	OPTI SEAL UHMW-PE Back-Up Seal 10/Pk		
PLUNGER	34-34-01935	Apparel Plunger LC-10AS	228-17019-00	
PLUNGER	34-34-01937	Apparel Plunger LC-10AT	228-17019-00	
PLUNGER	34-34-01994	Apparel Housing LC-10AT Hazardous: Only Requires LC-10AS Plunger (Hazard)		

\* See Facing Page for more information.

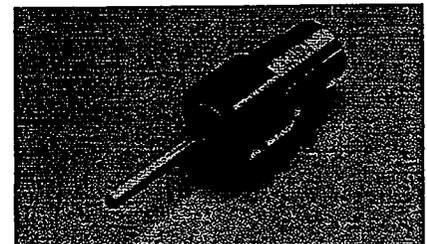
Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Shimadzu pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

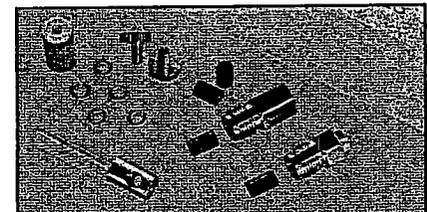
Type	OPTI-Part #	Description	Price
1st AID KIT	34-08-00851	HPLC First Aid Kit LC-6A	
1st AID KIT	34-08-00852	HPLC First Aid Kit LC-600/LC-9A, LC-10AD, ESA Model 580	
1st AID KIT	34-08-00887	HPLC First Aid Kit LC-10AS	
1st AID KIT	34-08-02048	HPLC First Aid Kit LC-10AT	
FIT KIT	34-08-00850	Fittings Kit, All Shimadzu	



Left to right: Plungers and Seals for Shimadzu LC-600/LC-9A, LC-10AS, LC-6A



Universal Plunger for Shimadzu LC-10AT



HPLC First Aid Kit™ for LC-6A

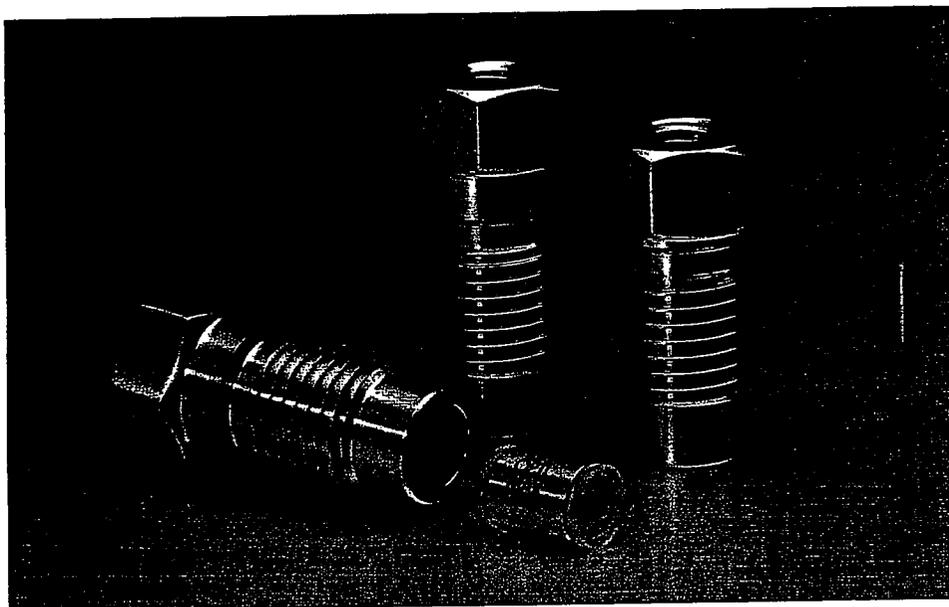
SHIMADZU

# SPECTRA-PHYSICS

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Spectra-Physics HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See pg. 41 for more information.



OPTI-MAX® Cartridge Check Valve System for Spectra-Physics



SPECTRA-PHYSICS

**OPTI-MAX  
Cartridge Code Chart**

Type	OPTI-Part #	Description	OEM #	Price
INLET	3562-00956	OPTI-MAX Inlet Housing & Cartridge All Above Pump Models	A3495-010	
OUTLET	3562-00961	OPTI-MAX Outlet Housing & Cartridge 8700, 8800, 8810, IsoChrom Pumps	A3490-010	
TRANSDUCER	3562-00952	OPTI-MAX Transducer Housing & Cartridge P-Series Pumps	A3990-010	
CARTRIDGE	1062-02004	OPTI-MAX Replacement Cartridges 1/8" Ball, 2/Pk		

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Spectra-Physics 8700, 8800, 8810, IsoChrom™, P-Series

Type	OPTI-Part #	Description	OEM #	Price
INLET	3562-00956	OPTI-MAX Inlet Housing & Cartridge All Above Pump Models	A3495-010	
OUTLET	3562-00961	OPTI-MAX Outlet Housing & Cartridge 8700, 8800, 8810, IsoChrom Pumps	A3490-010	
TRANSDUCER	3562-00952	OPTI-MAX Transducer Housing & Cartridge P-Series Pumps	A3990-010	
CARTRIDGE	1062-02004	OPTI-MAX Replacement Cartridges 1/8" Ball, 2/Pk		

← number from this chart to select the cartridge type you need.

# SPECTRA-PHYSICS

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### Spectra-Physics 8700, 8800, 8810, IsoChrom™, P-Series

Type	OPTI-Part #	Description	OEM #	Price
INLET	35-38-00945	Tested Inlet (All Above Pump Models)	A3495-010	
	35-38-00940	Inlet Conversion Kit (Inlet & Tube Assembly)	A3485-010	
	35-38-00943	Check Valve Tube Assembly (For Inlet)		
TRANSDUCER	35-38-00944	Tested Transducer, P-Series	A3990-010	
OUTLET	35-38-00949	Tested Outlet (8700, 8800, 8810, IsoChrom)	A3490-010	
	35-38-00941	Check Valve Tube Assembly (For Outlet)	A3479-010S	
REBUILD	35-38-00951	Rebuild Kit, All Above Pump Models (Rebuilds 2)		



Tested Inlet Check Valve



Tested Transducer Check Valve for Spectra-Physics P-Series Pumps



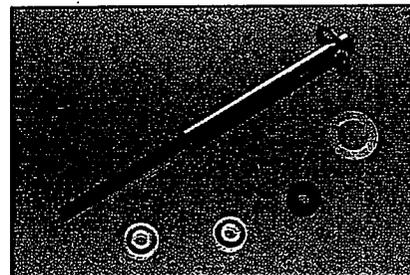
Tested Outlet Check Valve for Spectra-Physics 8700, 8800, 8810 and IsoChrom Pumps

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### Spectra-Physics 8800, 8810, IsoChrom, P-Series

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	35-36-00938	OPTI SEAL UHMWPE Piston Seal	A2947-010	
O/S (O/P)	35-36-00939	OPTI SEAL UHMWPE Piston Seal (O/P)		
ITB	35-36-00938	ITB PTFE Piston Seal	A2967-010	
ITB (O/P)	35-36-00939	ITB PTFE Piston Seal (O/P)		
PISTON	35-37-00991	Piston (All P-Series)	A3102-010	



### Spectra-Physics 8800, 8810, IsoChrom, P-Series (Flush Seal)

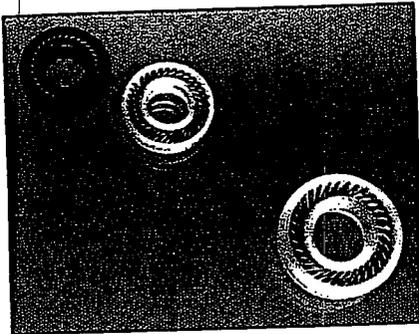
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	35-36-00918	OPTI SEAL UHMWPE Flush Seal	A2703-010	
O/S (O/P)	35-36-00919	OPTI SEAL UHMWPE Flush Seal (O/P)		
ITB	35-36-00920	ITB PTFE Flush Seal	A2963-010	
ITB (O/P)	35-36-00921	ITB PTFE Flush Seal (O/P)		

See next page for more Seals and Pistons

SPECTRA-PHYSICS

# SPECTRA-PHYSICS

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.



## Seals and Pistons

### Spectra-Physics 8700, 8700XR, 8750

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	35-36-00934	OPTI SEAL (CUMMINS) PEEK Piston Seal	A1703-020	
OPTI SEAL	35-36-00935	OPTI SEAL (CUMMINS) PEEK Piston Seal 10/Pk	A1703-020	
HB	35-36-00936	HB PEEK Piston Seal	A1703-020	
HB 10/Pk	35-36-00937	HB PEEK Piston Seal 10/Pk	A1703-020	

### Spectra-Physics 8000

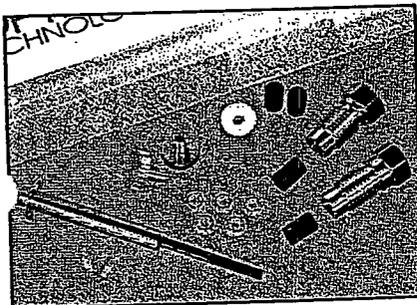
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	35-36-00932	OPTI SEAL (CUMMINS) PEEK Piston Seal	A1598-010	
OPTI SEAL	35-36-00933	OPTI SEAL (CUMMINS) PEEK Piston Seal 10/Pk	A1598-010	
BACK UP	35-36-00935	Back Up Seal PEEK	A1597-010	
BACK UP/PK	35-36-00937	Back Up Seal PEEK 10/Pk	A1597-010	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Spectra-Physics pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

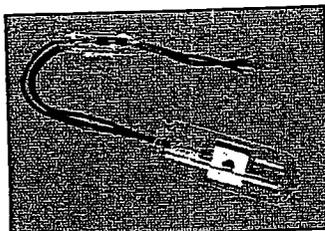
For your convenience, we offer these replacement lamps for your UV detector, which are guaranteed to meet or exceed original manufacturer's specifications.

## Accessory Kits

Type	OPTI-Part #	Description	OEM #	Price
FIRST AID KIT	35-08-00914	HPLC First Aid Kit 8000/8810 IsoChrom		
FIRST AID KIT	35-08-01334	HPLC First Aid Kit P-Series		
FIT KIT	35-08-00432	Fittings Kit (Rheodyne Injection Valve)		
FIT KIT	35-08-00913	Fittings Kit (Valco Injection Valve)		
LAMP	35-12-01295	Deuterium Lamp SP 8450 Detector	A1480-010	
LAMP	35-12-01333	SP Focus Detector Lamp Normal	9551-0023	

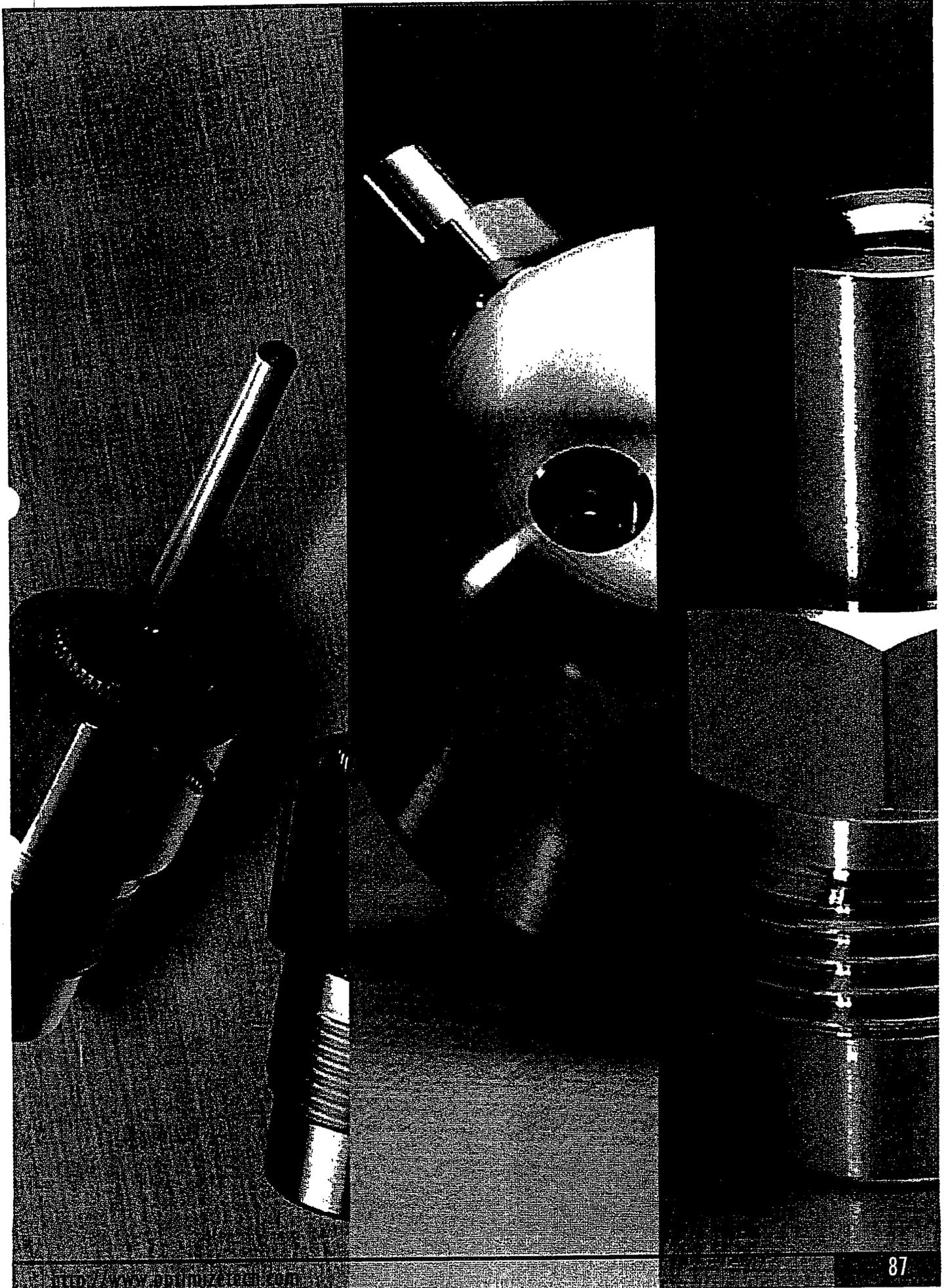


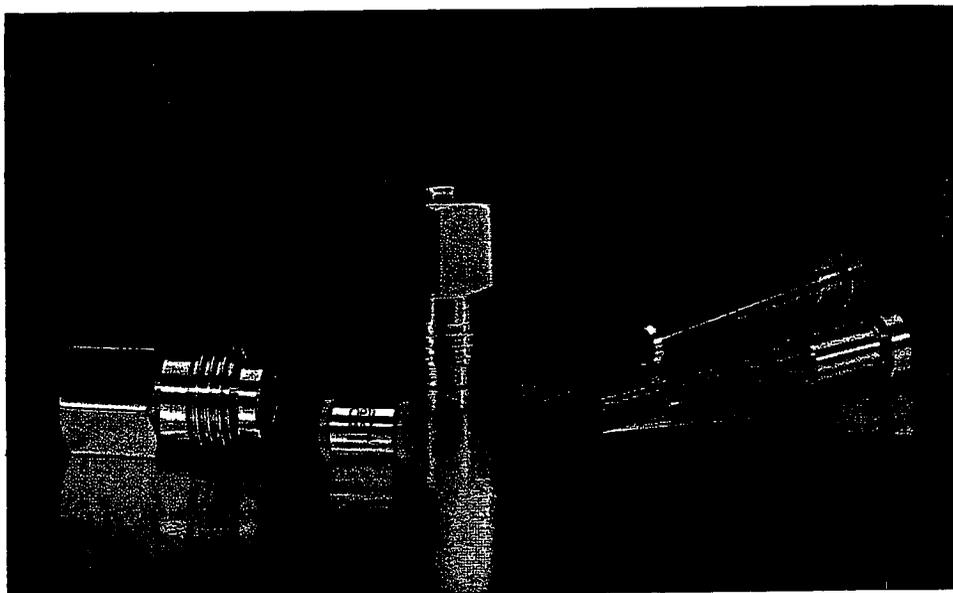
HPLC First Aid Kit™



Deuterium Lamp

SPECTRA-PHYSICS





OPTI-MAX® Cartridge Check Valve System and Pistons for SSI

For maximum performance and proven reliability, choose OPTI-MAX Cartridge Check Valves for your SSI HPLC system. These OPTI-MAX also fit BAS PM-48 and ESA 5700 SDM and DuPont 8800 pumps. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



### OPTI-MAX Cartridge Code Chart

Cartridge Code	Material	Ball	Seat
55	SS	Ceramic	Ceramic
58	PEEK	Ruby/Sapphire	Ruby/Sapphire

We recommend the SS Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### SSI 200 Series, Model 300

Type	OPTI-Part #	Description	OEM #	Price
INLET	3600000982	OPTI-MAX Inlet Housing & Cartridge	02-0162	
OUTLET	3600000987	OPTI-MAX Outlet Housing & Cartridge	02-0163	
CARTRIDGE	10-0002004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 1/Pk		

number from this chart to select the cartridge type you need.

For those who prefer repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valve Rebuild Kits

### SSI 200 Series, Model 300

Type	OPTI-Part #	Description	OEM #	Price
REBUILD	36-38-0098	Rebuild Kit (Rebuilds 2)	17-0167	

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### SSI 200 Series, Model 300

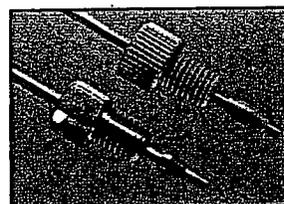
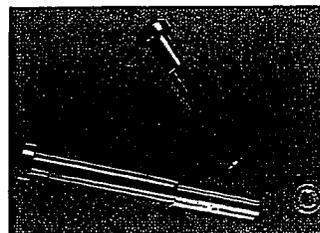
Type	OPTI-Part #	Description	OEM #	Price
OPTI-SEA	36-36-0130	OPTI-SEAL OHPAW PEEK Seal 10/Pk	90-09	
OS-SEAL	36-36-0130	OPTI-SEAL OHPAW PEEK Seal 10/Pk		
PEB	36-36-0129	PEB PEEK Piston Seal	90-1012	
PEB-10/Pk	36-36-01300	PEB PEEK Piston Seal 10/Pk		
PISTON	36-37-0097	Supplier Piston 200 Series (with self-flushing option)	17-097	
PISTON	36-37-0098	Supplier Piston 200 Series (with self-flushing option)	17-098	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your SSI pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

Manufactured by Optimize Technologies, these SSI style fittings are machined from type 316 passivated stainless steel and PEEK.

## Accessory Kits and Fittings

Type	OPTI-Part #	Description	Price
FIRST AID KIT	36-08-00968	HPLC First Aid Kit 200 Series (with self-flushing option)	
FIRST AID KIT	36-08-00967	HPLC First Aid Kit 200 Series (without self-flushing option)	
FT KIT	36-08-00621	Fittings Kit	
	36-24-00969	1/4-28 Nut For 1/16" OD Tubing	
	36-24-01674	Ferrule, SS For 1/16" OD Tubing	
	36-24-00970	Nuts (36-24-00969) and SS Ferrules (36-24-01674), 10/Pk	
	10-20-00269	OPTI-LOK 6K Double-Tight Ferrule, PEEK	
	10-20-00330	OPTI-LOK 6K 1/4-28 Hand-Tight Nut, PEEK	
	10-20-00331	OPTI-LOK 6K Hand-Tight Nuts (10-20-00330) and 6K Double-Tight PEEK Ferrules (10-20-00269), 10/Pk	

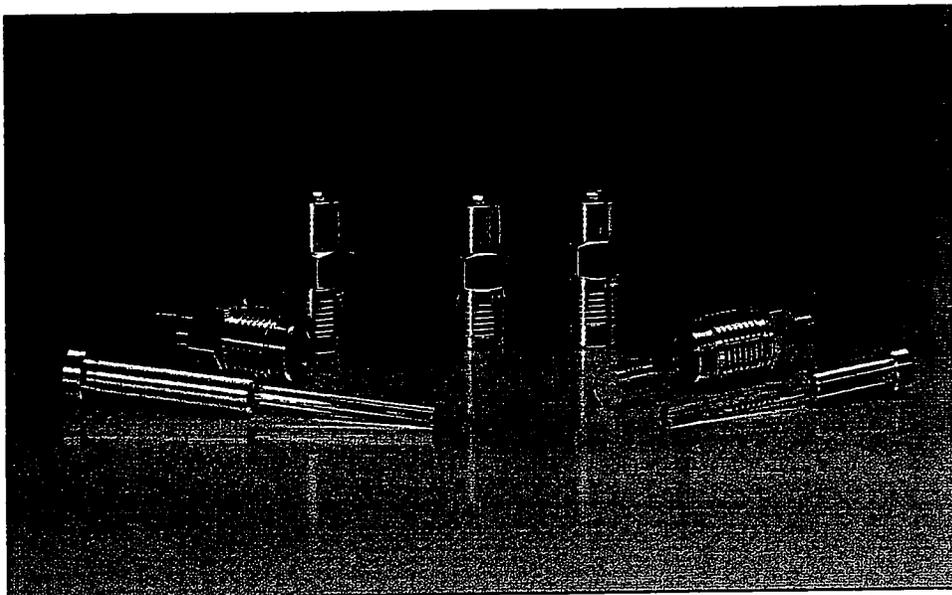


# VARIAN

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Varian HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom-designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing.

OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See pg. 41 for more information.



Left to Right: Piston for Varian 2010/2510, OPTI-MAX® Cartridge Check Valve System for Varian 2010 (Inlet and Outlet), Varian 2510 (Inlet and Outlet), Varian 9000 Star (Outlet), and Piston for Varian 9000 Star



**OPTI-MAX  
Cartridge Code Chart**

Material	Ball	Seat	Cartridge Code
SS	Ceramic	Ceramic	CC
PEEK	Ruby/Sapphire	Ruby/Sapphire	SB

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### Varian 2010 FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	38-001038	OPTI-MAX Inlet Housing & Cartridge	00-997261-09	
OUTLET	38-001043	OPTI-MAX Outlet Housing & Cartridge	00-997261-10	
CARTRIDGE	10-0007004	OPTI-MAX Replacement Cartridges: 1/8" Ball 2/PK		

← number from this chart to select the cartridge type you need.

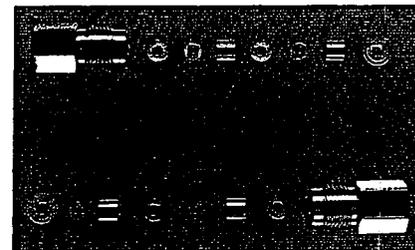
### Varian 2510 & Varian 9000 Star FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	38-001544	OPTI-MAX Inlet Housing & Cartridge: 2510	00-997554-19	
OUTLET	38-001546	OPTI-MAX Outlet Housing & Cartridge: 2510	00-997554-18	
OUTLET	38-001667	OPTI-MAX Outlet Housing & Cartridge: 9000 Star	00-919465-91	
CARTRIDGE	10-0007004	OPTI-MAX Replacement Cartridge: 1/8" Ball 2/PK		

← number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

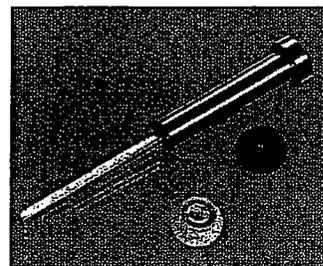


### Varian 2010

Type	OPTI-Part #	Description	OEM #	Price
INLET	38-38-01016	Tested Inlet	00-997261-09	
OUTLET	38-38-01021	Tested Outlet	00-997261-10	
REBUILD	38-38-01023	Rebuild Kit (Rebuilds 2)		

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons



### Varian 2010, 2510

Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	38-36-01000	OPTI SEAL UHMW PE Piston Seal	00-997261-31	
OPTI SEAL	38-36-01001	OPTI SEAL UHMW PE Piston Seal 10/PK		
ITB™	38-36-01002	ITB PTFE Piston Seal	00-997261-37	
ITB 10/PK	38-36-01003	ITB PTFE Piston Seal 10/PK		
ITB 25	38-36-01003	ITB PTFE Piston Seal		
PISTON	38-34-00989	Sapphire Piston	00-997261-08	

### Varian 9000 Star

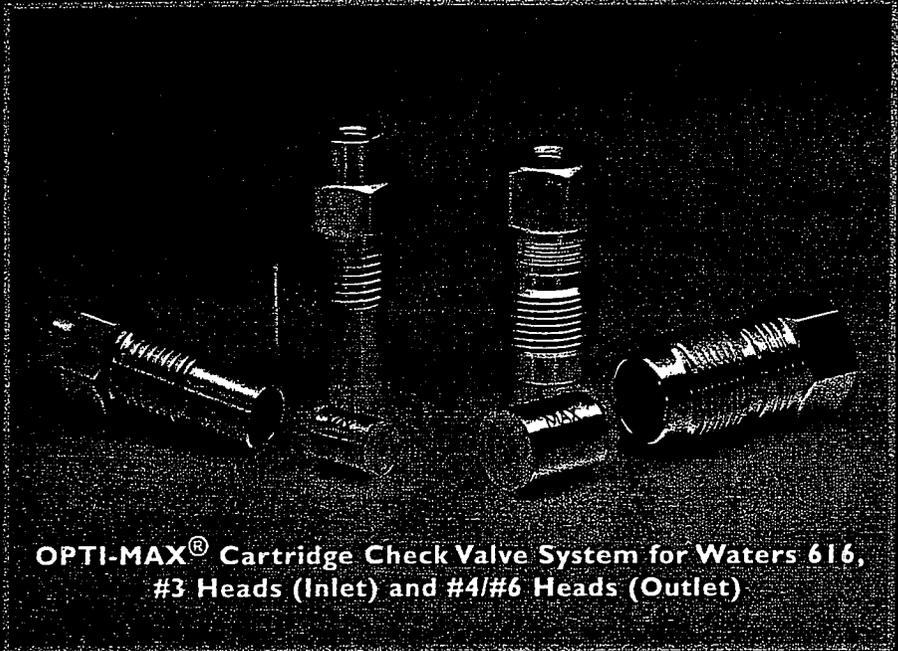
Type	OPTI-Part #	Description	OEM #	Price
OPTI SEAL	38-36-01553	OPTI SEAL UHMW PE Piston Seal		
OPTI SEAL	38-36-01554	OPTI SEAL UHMW PE Piston Seal 10/PK		
ITB™	38-36-01553	ITB PTFE Piston Seal		
ITB 10/PK	38-36-01554	ITB PTFE Piston Seal 10/PK		
PISTON	38-34-00989	Sapphire Piston	00-997261-08	

Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Varian pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits from Optimize.

## Accessory Kits

Type	OPTI-Part #	Description	Price
FIRST AID KIT	38-08-00998	HPLC First Aid Kit 2010	
FIRST AID KIT	38-08-02047	HPLC First Aid Kit 2510	
FIRST AID KIT	38-08-02049	HPLC First Aid Kit 9000 Star	
FIT KIT	38-08-00913	Fittings Kit (Valco Injection Valve)	
FIT KIT	38-08-00432	Fittings Kit (Rheodyne Injection Valve)	

WATERS



**OPTI-MAX<sup>®</sup> Cartridge Check Valve System for Waters 616,  
#3 Heads (Inlet) and #4/#6 Heads (Outlet)**

WATERS



**OPTI-PRIME<sup>™</sup> Pump Head and OPTI-MAX<sup>®</sup> Cartridge Check Valve System  
for Waters Pumps**

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Waters HPLC system. Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. Innovative Free-Turn™ housings let you switch cartridges without removing your connecting tubing. OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



## OPTI-MAX® Cartridge Check Valves

### 100µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA] FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-CC-01251	OPTI-MAX Inlet Housing & Cartridge	33679	
OUTLET	39-CC-01256	OPTI-MAX Outlet Housing & Cartridge	25216	
CARTRIDGE	10-CC-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk		

### Microbore Head [616] FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-CC-01949	OPTI-MAX Inlet Housing & Cartridge	55845 & 24960	
OUTLET	39-CC-01950	OPTI-MAX Outlet Housing & Cartridge	55845 & 24960	
CARTRIDGE	10-CC-02004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk		

### 225µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA] FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-CC-01262	OPTI-MAX Inlet Housing & Cartridge	60307	
CARTRIDGE	10-CC-02005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk		

OUTLET	39-CC-01256	OPTI-MAX Outlet Housing & Cartridge	25216	
CARTRIDGE	10-CC-02004	OPTI-MAX Replacement Cartridges, 1/8" Ball, 2/Pk		

### 400µL (#4) & 900µL (#6) Heads [Delta Prep™ 3000, 600/600E, 650] FREE-TURN™

Type	OPTI-Part #	Description	OEM #	Price
OUTLET	39-CC-01267	OPTI-MAX Outlet Housing & Cartridge	33326	
CARTRIDGE	10-CC-02005	OPTI-MAX Replacement Cartridges, 3/16" Ball, 2/Pk		

### OPTI-MAX Cartridge Code Chart

	Ceramic Ball	Ceramic Ball
Material	SS	PEEK
Cartridge Code	56	58
	66	68
	56	58
	66	68
	56	58
	66	68

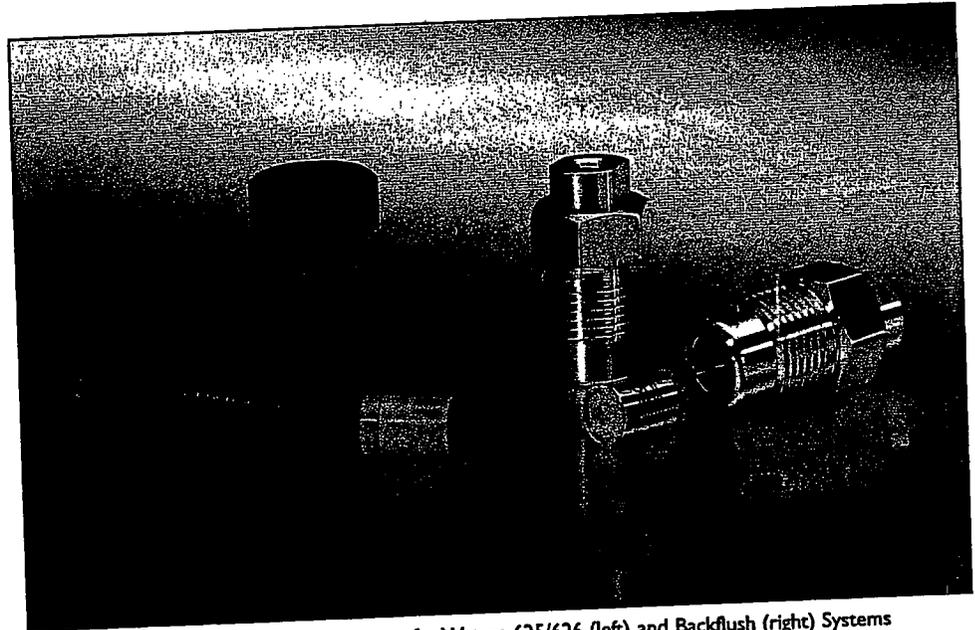
WATERS

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to your left. See page 41 for more information.

# WATERS

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your Waters 625, 626 and Backflush HPLC Systems.

Model 625 and 626 solvent delivery systems are designed for bio-compatible applications. To maintain a bio-inert flow path in these systems, use only PEEK OPTI-MAX Cartridges with ceramic or ruby/sapphire balls and seats. To select the type of cartridge you require, use the chart below. See page 41 for more information.



OPTI-MAX® Cartridge Check Valve System for Waters 625/626 (left) and Backflush (right) Systems

WATERS

Recommended Cartridge

### OPTI-MAX Cartridge Code Chart

Material	Ball	Seat
Ceramic	1	1
Ruby/Sapphire	2	2
PEEK	3	3

Cartridge Code: CC

Recommended Cartridge

Material	Ball	Seat
Ceramic	1	1
Ruby/Sapphire	2	2
PEEK	3	3

Cartridge Code: CC

We recommend OPTI-MAX cartridges with ceramic balls and seats for the above pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valves

### 625/626

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-001907	OPTI-MAX Inlet Housing & Cartridge	30541 & 24120	
OUTLET	39-001909	OPTI-MAX Outlet Housing & Cartridge	30543 & 24120	
CARTRIDGE	10-002004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk		

← number from this chart to select the cartridge type you need.

### Backflush FREE-TURN™

Type	OPTI-Part #	Description	Price
INLET	39-001979	OPTI-MAX Inlet Housing & Cartridge	
OUTLET	39-001980	OPTI-MAX Outlet Housing & Cartridge	
CARTRIDGE	10-002004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2/Pk	

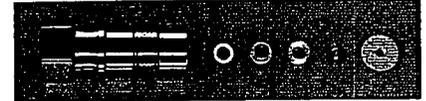
← number from this chart to select the cartridge type you need.

For those who prefer purchasing standard check valve assemblies or repairing check valves with rebuild kits, we offer these precision-machined replacement parts, guaranteed to meet or exceed OEM specifications.

## Standard Check Valves

### 100 µL Head [M45/45G, M501, 510, 590, 600/600E, 610, 6K/6KA]

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-38-01218	Tested Inlet 1/8"	25214	
REBUILD	39-38-01226	Rebuild Kit (Rebuilds 2)	60495	
	39-38-01451	PEEK Washer	05072	
	39-38-01221	Gasket Retainer	60435	
	39-38-01227	Insert	05077	
	39-38-01308	Ruby Ball/ Sapphire Seat, 1/8"	25306	
	39-38-01224	Washer	05090	
	39-38-01225	Inlet Housing	25203	
OUTLET	39-38-01237	Tested Ball & Seat Outlet Check Valve, 1/8"	25216	
REBUILD	39-38-01243	Rebuild Kit (Rebuilds 2)	26014	
	39-38-01239	Rulon Washer	05071	



Tested Inlet Check Valve



Tested Ball & Seat Outlet Check Valve



Tested Spring Actuator Outlet Check Valve

### 100 µL Head, Spring Actuator Style [510, 590, 610]

Type	OPTI-Part #	Description	OEM #	Price
OUTLET	39-38-01227	Tested Spring Actuator Outlet Check Valve	25028	
REBUILD	39-38-01236	Rebuild Kit (Rebuilds 2)	26016	
	39-38-01228	Outlet Housing	25212	
	39-38-01229	Cup Filter	05078	
	39-38-01230	Spring	05082	
	39-38-01232	Actuator	05084	
	39-38-01233	Actuator Seat PTFE	05081	
	39-38-01234	PTFE Washer	05096	



Tested Extended Flow Inlet Check Valve



Tested Ball & Seat Outlet Check Valve

### 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]

Type	OPTI-Part #	Description	OEM #	Price
INLET	39-38-01244	Tested Extended Flow Inlet Check Valve, 3/16"	60307	
	39-38-01245	Extended Flow Housing	60308	
	39-38-01246	Guide Seal	32704	
	39-38-01311	3/16" Ball & Seat	32646	
	39-38-01247	Guide	32705	
	39-38-01248	Retainer	32707	
	39-38-01321	Housing Seal	32706	
OUTLET	39-38-01237	Tested Ball & Seat Outlet Check Valve, 1/8"	25216	
REBUILD	39-38-01243	Rebuild Kit (Rebuilds 2)	26014	
	39-38-01239	Rulon Washer	05071	

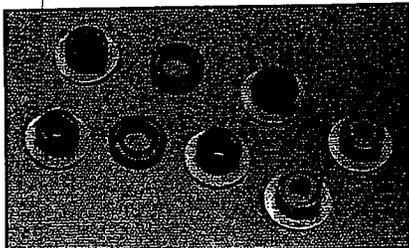


Tested Extended Flow Outlet Check Valve

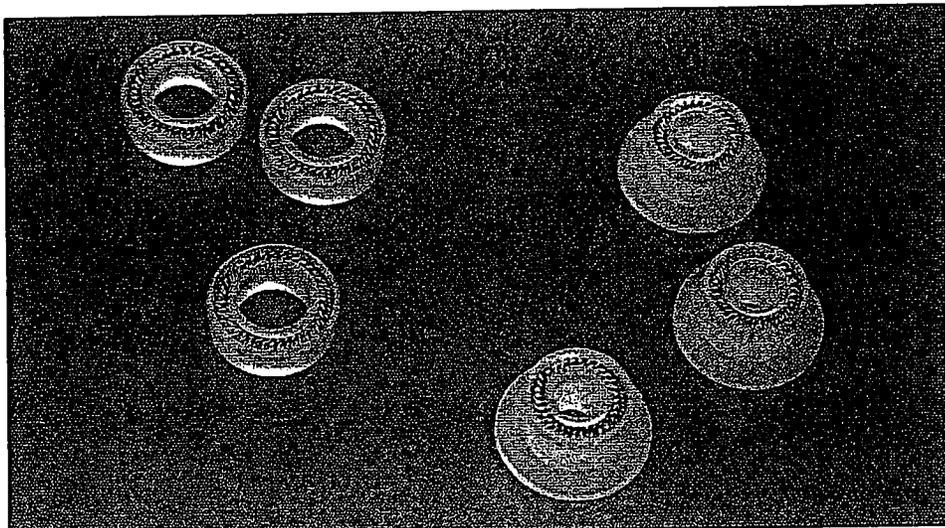
### 400 µL (#4) & 900 µL (#6) Heads [Delta Prep™ 3000, 600/600E, 650]

Type	OPTI-Part #	Description	OEM #	Price
OUTLET	39-38-01249	Tested Extended Flow Outlet, 3/16"	51326	
REBUILD	39-38-01250	Rebuild Kit (Rebuilds 2)	88223	

# WATERS



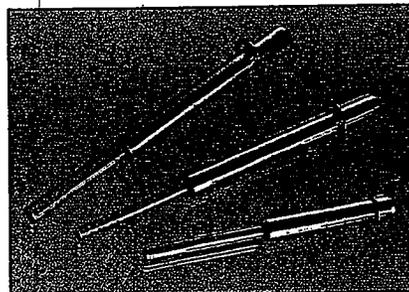
ITB™ PTFE Plunger Seals



OPTI-SEAL® UHMW-PE Plunger Seals

Replacement seals and plungers from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

WATERS



Plungers for Waters Pumps (top to bottom: 39-34-01193, 39-34-01188 and 39-34-01191)

## Seals and Plungers

### 100 µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA]

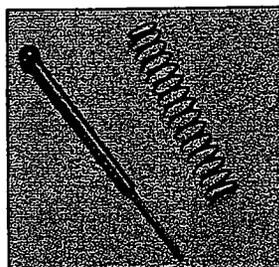
Type	OPTI-Part #	Description	OEM #	Price
OPTI-SEAL	39-36-01205	OPTI-SEAL UHMW-PE Plunger Seal	2243	
OPTI-10/PK	39-36-01206	OPTI-SEAL UHMW-PE Plunger Seal 10/PK		
ITB™	39-36-01206	ITB-PTFE Plunger Seal Black	26613	
ITB-10/PK	39-36-01207	ITB-PTFE Plunger Seal Black 10/PK		
ITB™	39-36-01208	ITB-PTFE Plunger Seal Red	25618	
ITB-10/PK	39-36-01210	ITB-PTFE Plunger Seal Red 10/PK		
ITB™	39-36-01211	ITB-PTFE Plunger Seal Tan	25384	
ITB-10/PK	39-36-01212	ITB-PTFE Plunger Seal Tan 10/PK		
PLUNGER	39-34-01188	Plunger Sto. 590, 600/600E, 610, 6K/6KA	26016	
PLUNGER	39-34-01191	Plunger for M45/45G, M501	26524	
PLUNGER	39-34-01193	Plunger, Inertol Head & Spring Kit 2/Pk	60503	

### 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]

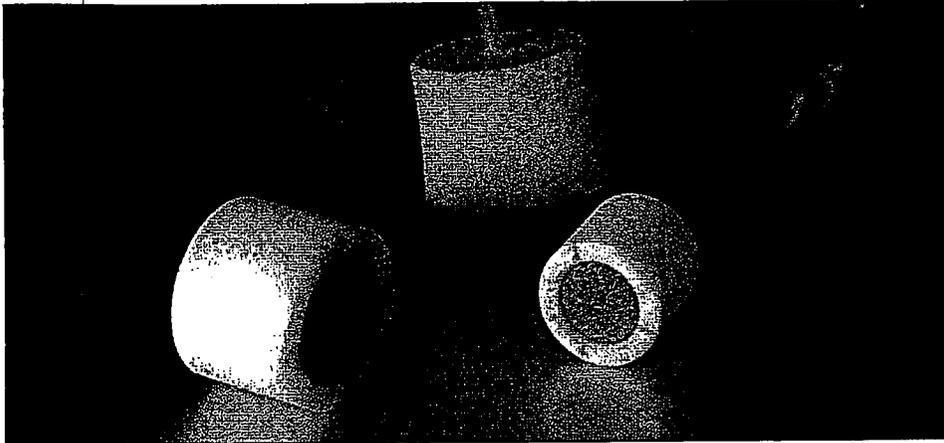
Type	OPTI-Part #	Description	OEM #	Price
OPTI-SEAL	39-36-01213	OPTI-SEAL UHMW-PE Plunger Seal	26244	
OPTI-10/PK	39-36-01214	OPTI-SEAL UHMW-PE Plunger Seal 10/PK		
ITB™	39-36-01214	ITB-PTFE Plunger Seal, Extended Flow	26644	
ITB-10/PK	39-36-01215	ITB-PTFE Plunger Seal, Extended Flow 10/PK		
PLUNGER	39-34-01193	Plunger	60504	

### 616, 625/626

Type	OPTI-Part #	Description	OEM #	Price
PLUNGER	39-34-01230	Plunger & Spring	21788	

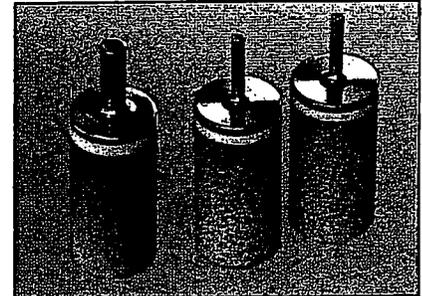


Plunger and Spring for 616 and 625/626



OPTI-SOLV™ Solvent Reservoir Filters (above) are made using PTFE and Titanium. Optimize Solvent Reservoir Filters with Stem (right) are made of Hastelloy C® for maximum corrosion resistance and inertness. They are an improved version of the Waters stem-type filter.

For extended flow systems, and where flow rates exceed 10mL/minute, a 10-micron filter is required, while a 2-micron filter is preferable for most analytical applications. For more information about reservoir filters, please refer to pages 14 and 15.



Solvent Reservoir Filters with Stem

## Solvent Reservoir Filters

	Solvent Reservoir Filter with Tube Stem For 1/8" ID Tubing	OPTI-SOLV Analytical Filters For 3/16" OD Tubing For 1 Liter Solvent Bottles	OPTI-SOLV Prep Filters For 3/16" OD Tubing For 4 Liter Solvent Bottles
2 Microns	10-04-00115	10-04-00054	10-04-00065
5 Microns	10-04-00115	10-04-00054	10-04-00065
10 Microns	10-04-00115	10-04-00054	10-04-00065
10 Microns/PK	10-04-00115	10-04-00058	10-04-00070

Optimize Technologies manufactures Waters-style compression screws and ferrules exclusively from type 316 SS. Compression screws and ferrules are acid passivated for optimum chemical resistivity.

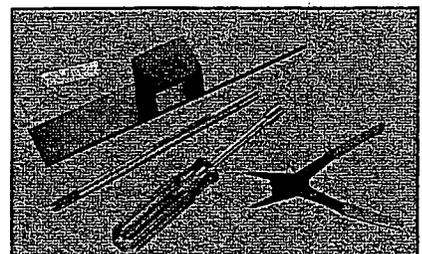
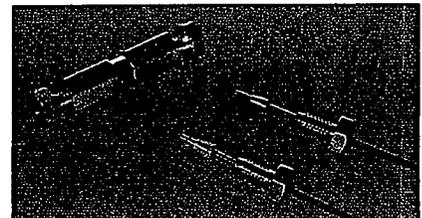
## Compression Screws & Ferrules For 1/16"OD Tubing

OPTI-Part #	Description	OEM #	Price
39-24-01085	Slotted Nut Driver	76374	
39-24-01090	Compression Screw, SS	05070	
39-24-01091	Ferrule, SS	05063	
39-24-01091	Compression Screws (39-24-01090) & Ferrules (39-24-01091), 10/PK	25604	
39-24-01090	Waters Style Ferrule, PEEK	31807	

Designed specifically for Waters, these tools help increase the ease and safety of pump repairs.

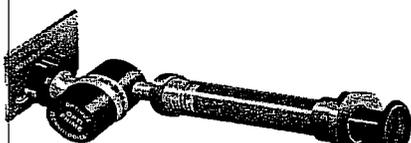
## Specialty Tools

OPTI-Part #	Description	OEM #	Price
39-10-01077	Plunger Insertion Tool	11042	
39-10-01083	Seal Forming Tool	76765	
39-10-01078	Foot Vise for Waters Pump Heads		
39-10-01085	Slotted Nut Driver for 1/16" Compression Screws	76374	
39-10-01084	Clip Ring Pliers	25263	
39-10-01086	Waters Specialty Tool Kit (Includes one each of the above tools)		

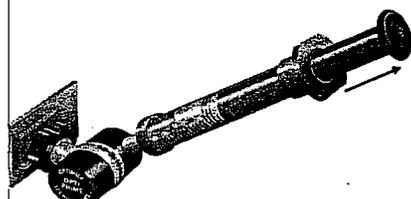


WATERS

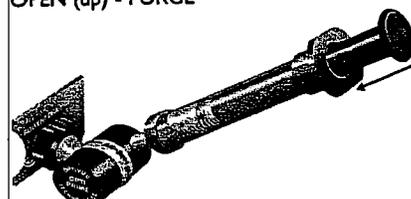
# WATERS



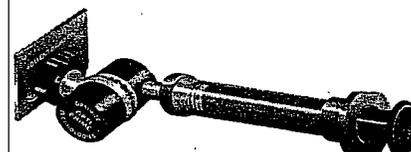
OFF (down)



OPEN (up) - PURGE

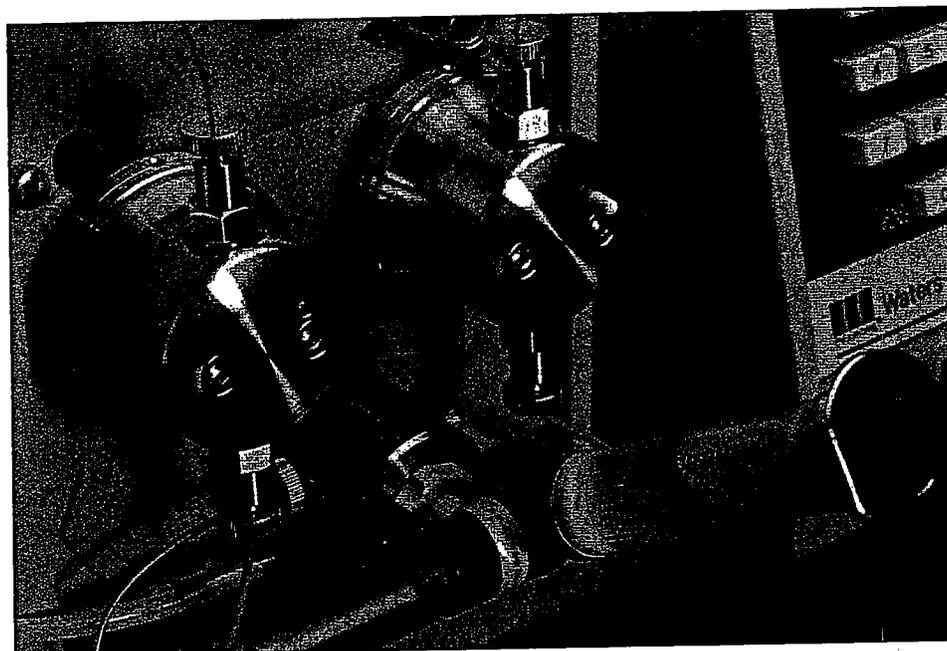


OPEN (up) - PRIME



OFF (down)

Prime your Waters Pump in four easy steps!



OPTI-PRIME™ Pump Heads and OPTI-PRIME™ Priming Valve with OPTIMIZE Safety Syringe

Are you tired of repeating the frustrating procedure of priming your Waters analytical pump? Are you having nightmares about 17 gauge, stainless steel, blunt tip, luer hub needles with ferrules swaged on them? Then you need an OPTI-PRIME Priming Valve. OPTI-PRIME reduces the priming procedure to a simple task that takes only seconds. An easy, one-time installation eliminates wear and tear on the seal insert; there is no need to use the standard draw-off tube, or to cut a piece of Teflon® tubing and force it over the stem.

**Wetted Materials:** PPS, PTFE, and 316 Stainless Steel — the OPTI-PRIME valve is inert to all commonly used HPLC solvents.

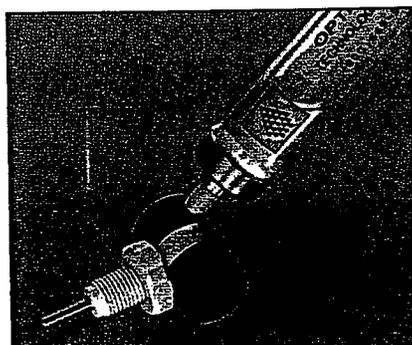
**Single-Handed Operation:** After the valve is tightened and in the off (down) position, attach the syringe to the luer adapter. Rotating the syringe upward turns the valve to the open position.

**No Need to Remove the Syringe During Priming:** The innovative design of the OPTI-PRIME valve allows it to rotate upward, letting the air rise naturally to the top of the syringe. This eliminates the need to remove the syringe to expel air once solvent reaches it.

**No Air Is Injected Into Your Pump:** Simply stop pushing on the syringe plunger before air reaches the valve. After priming is complete, rotate the syringe back down. The valve is now closed and the syringe can be removed.

**Fits Single Solvent Pumps:** M45/45G, M501, 510, 590, 600/600E, and 610.

**Fits Multiple Solvent Inlet Pumps:** 6K/6KA.



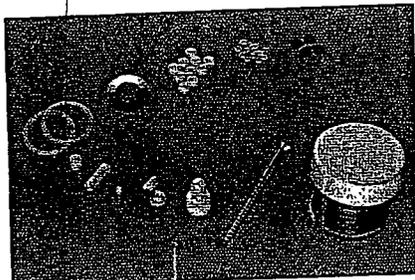
OPTI-PRIME™ Priming Valve

## OPTI-PRIME™ Priming Valve U.S. PAT. NO. 5,616,300

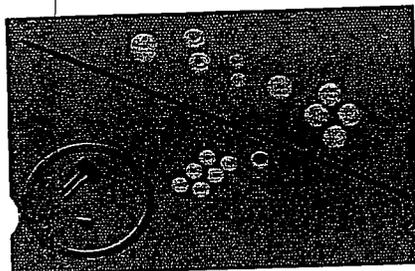
OPTI-PART #	Description	Price
01-0117	OPTI-PRIME Priming Valve	
01-01170	OPTI-PRIME Priming Valve with OPTIMIZE Safety Syringe	
01-01171	OPTIMIZE Safety Syringe	



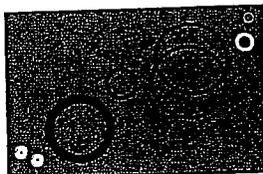
# WATERS



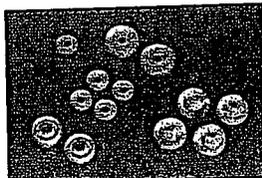
WISP™ Fluid Pack Kit



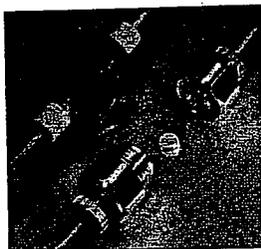
712 Injector Kit (Old Style)



712 High Pressure Valve Kit



715, 717 Seal Pack Kit



PEEK (top) and SS (bottom)  
OPTI-SOLV™ In-Line Filters

Manufactured by Optimize Technologies, these replacement parts meet or exceed the specifications supplied by Waters, and will improve performance and serviceability.

## WISP™ Rebuild Kits

### WISP™ Fluid Pack Rebuild Kit

39-30-01128 WISP Fluid Pack Rebuild Kit Parts and Instructions  
to Rebuild 10 High and Low Pressure Valves and 710 Injector

OPTI-Part #	QTY	Description	OPTI-Part #	QTY	Description
39-30-01095	2	Black Liquid Seal	39-30-01104	2	Syringe Barrel Seal
39-30-01097	2	Gray Seal	39-30-01105	2	Syringe Barrel Seal
39-30-01099	10	White Liquid Seal	39-30-01106	2	Needle Wash Filter
39-30-01105	2	Belleville Washer	39-30-01108	2	Seal Removal Tool
39-30-01102	2	UPV PTFE Washer	39-30-01099	2	White Lithium Grease
39-30-01103	2	Injection Seal	39-30-01252	1	UPV Seal

### 712 Injector (Old Style) Rebuild Kit

39-30-01129 WISP 712 Injector Rebuild Kit  
Parts and Instructions to rebuild Old Style 712 Injector

OPTI-Part #	QTY	Description	OPTI-Part #	QTY	Description
39-30-01096	1	Compression Screw	39-30-01114	1	712 WISP Needle
39-30-01111	1	Needle Washer	39-30-01112	1	712 Seal
39-30-01111	1	Lower Wash Spacer	39-30-01113	1	712 O-Ring
39-30-01113	1	712 Inlet Seal	39-30-01114	1	Injection Spring
39-30-01114	1	Small PTFE Washer	39-30-01251	1	PTFE Seal
39-30-01115	1	Upper Wash Spacer			

### 712 High Pressure Valve Rebuild Kit

39-30-01131 Kit for 712 High Pressure Valve  
Parts and Instructions to rebuild the WISP 712 High Pressure Valve

OPTI-Part #	QTY	Description	OPTI-Part #	QTY	Description
39-30-01117	1	712 Air Seal	39-30-01122	1	Air Sleeve O-Ring
39-30-01118	1	PTFE O-Ring	39-30-01123	1	Injection O-Ring Seal
39-30-01121	2	Port Block High O-Ring	39-30-01125	2	WISP Solvent Seal Long

### 715, 717 Seal Pack Assembly Rebuild Kit

39-30-01132 715, 717 Seal Pack Assembly Rebuild Kit  
Parts and Instructions to rebuild the WISP 715, 717 Seal Pack

OPTI-Part #	QTY	Description	OPTI-Part #	QTY	Description
39-30-01106	2	Needle Wash Filter	39-30-01108	2	Seal Removal Tool
39-30-01105	2	PTFE Wash Washer	39-30-01102	2	White Solvent Seal Long
39-30-01114	1	Small PTFE Washer	39-30-02058	1	Lower Wash Spacers

Eliminate reproducibility errors by replacing the Waters supplied in-line filter in your WISP system with the OPTI-SOLV™ In-Line Solvent filter. For more information, see page 12.

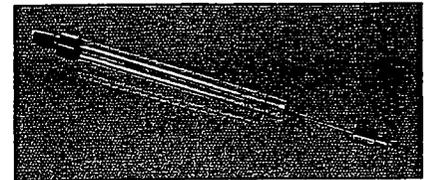
## OPTI-SOLV™ In-Line Solvent Filter

OPTI-Part #	Description	Price	OPTI-Part #	Description	Price
10-04-00386	0.5 µm PEEK Hand Tight		10-04-00391	2 µm PEEK Hand Tight	
10-04-00387	0.5 µm SS Wrench Tight		10-04-00390	2 µm SS Wrench Tight	
10-04-00100	0.5 µm Replacement Filter 10/PK		10-04-00103	2 µm Replacement Filter 10/PK	

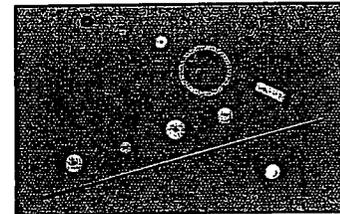
WISP™ components manufactured by Optimize Technologies are equivalent to those supplied by Waters. Dimensions and materials conform to precise specifications to guarantee the highest possible performance.

## WISP™ Sample Processor Replacements

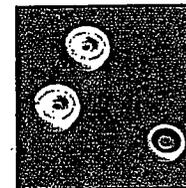
OPTI-Part #	Description	OEM #	Price
39-30-01094	250 µL WISP Syringe	72109	
39-30-01095	Liquid Seal, Black	05101	
39-30-01097	Seal Retainer	05118	
39-30-01099	Liquid Seal, White	05117	
39-30-01100	EPTE PTFE Washer	05126	
39-30-01104	Syringe Barrel Seal	77347	
39-30-01106	Injector Wash Port	05106	
39-30-01111	Spacer, Lower Needle Wash	05134	
39-30-01113	WISP Solvent Seal	77220	
39-30-01114	EPTE Washer	05135	
39-30-01115	Spacer, Upper Needle Wash	05133	
39-30-01116	WISP Needle 712, 715, and 717	77239	
39-30-01117	Injector Air Seal	77380	
39-30-01118	EPTE O-Ring 712-HPV		
39-30-01124	0.6K Injector Seal	05151	
39-30-01125	WISP Solvent Seal, Long		



250 µL WISP Syringe



WISP Replacement Parts

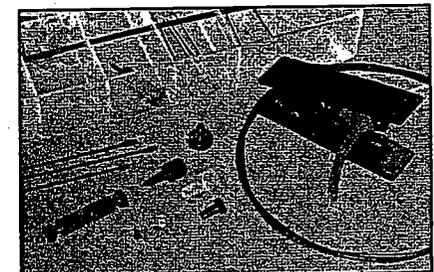


WISP Seals

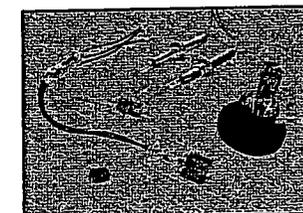
Don't let unexpected pump malfunctions catch you by surprise! Optimize offers HPLC First Aid Kits™ equipped with a complete set of precision components for your Waters pump, giving you rapid access to the parts you need to keep your system running. We also offer Fittings Kits which contain a useful selection of fittings, unions and plugs, value-priced and specifically tailored to your HPLC pump. See pages 46-47 for more information about accessory kits. Replacement lamps your UV detector are guaranteed to meet or exceed original manufacturer's specifications.

## Accessory Kits and Lamps

PTI-Part #	Description	OEM #	Price
1st AID KIT	39-08-01073 HPLC First Aid Kit, 100 µL Head [M45/45G, M501]		
1st AID KIT	39-08-01074 HPLC First Aid Kit, 100 µL Head [510, 590, 600/600E, 610, 6K/6KA]		
1st AID KIT	39-08-01076 HPLC First Aid Kit, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]		
1st AID KIT	39-08-01075 HPLC First Aid Kit, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA] (Flow Rates > 10ml/min)		
FIT KIT	39-08-01072 Fittings Kit for Waters Pumps		
LAMP	39-32-01175 Mercury Lamp, 440 & 441	97323	
LAMP	39-32-01176 Zinc Lamp, 441	97723	
LAMP	39-32-01177 Cadmium Lamp, 441	97731	
LAMP	39-32-01178 Quartz Lamp, 150C	75631	
LAMP	39-32-01179 Deuterium Lamp, 481	80357	
LAMP	39-32-01180 Source Lamp, 401	48419	
LAMP	39-32-01185 Incandescent Lamp, 5/Pk	05093	
LAMP	39-32-01187 Deuterium Lamp, 486	80678	
LAMP	39-32-01294 Deuterium Lamp, 450	98946	
LAMP	39-32-01295 Source Lamp, 480 & 481	99499	



Fittings Kit



Lamps for Waters Detectors

# OTHER BRANDS

For maximum performance and proven reliability, choose OPTI-MAX® Cartridge Check Valves for your HPLC system. Universal OPTI-MAX cartridges function as both inlet and outlet check valves, and fit multiple pump models (and brands) using custom designed housings.

Replacing check valves is a snap — just remove the housing, tap out the old cartridge and put in a new one. OPTI-MAX cartridges are available in either stainless steel or PEEK, loaded with ceramic or ruby/sapphire matched ball and seat sets. Select the cartridge you require using the chart below. See page 41 for more information.



**OPTI-MAX Cartridge Code Chart**

We recommend the SS/Ceramic OPTI-MAX cartridge for these pumps. If you prefer a different cartridge, use this chart to select it. Simply find the Cartridge Code that matches your cartridge type, and insert it in place of the CC in the OPTI-MAX part number to the right. See page 41 for more information.

## OPTI-MAX® Cartridge Check Valve

### Kontron 420/422 M-Head

Type	OPTI-Part #	Description	Price
INLET	45-201898	OPTI-MAX Inlet Housing & Cartridge	
OUTLET	45-201900	OPTI-MAX Outlet Housing & Cartridge	
CARTRIDGE	10-202004	OPTI-MAX Replacement Cartridges, 1/16" Ball, 2PK	

← number from this chart to select the cartridge type you need.

**NOTE:** We also offer the OPTI-MAX Cartridge Check Valve System for Tosoh model CPM pumps sold in the Japanese market.

Replacement seals and pistons from Optimize offer superior performance and reliability, and are designed to meet or exceed the specifications of their OEM counterparts. For more information on selecting the best seal for your application, please refer to page 42.

## Seals and Pistons

### Knauer M640

Type	OPTI-Part #	Description	Price
OPTI SEAL	16-22-0027	OPTI SEAL DEMOWAVE Piston Seal	
OPTI SEAL	16-22-0028	OPTI SEAL DEMOWAVE Piston Seal (UP)	

### Kontron 420/422 M-Head

Type	OPTI-Part #	Description	Price
PISTON	45-14-01897	Piston	

### Tracor

Type	OPTI-Part #	Description	Price
OPTI SEAL	17-22-0029	OPTI SEAL DEMOWAVE Piston Seal	
OPTI SEAL	17-22-0028	OPTI SEAL DEMOWAVE Piston Seal (UP)	

OTHER BRANDS

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OPTI-Part #	Description	OEM #	Price	Page #
<b>OPTIMIZE</b>				
10-02-00010	OPTI-GUARD Guard Column, C8, Yellow, 5/Pk			32
10-02-00018	OPTI-GUARD Guard Column, Phenyl, Green, 5/Pk			32
10-02-00026	OPTI-GUARD Guard Column, NH2, Red, 5/Pk			32
10-02-00034	OPTI-GUARD Guard Column, Cation, White, 5/Pk			32
10-02-01485	OPTI-GUARD 3mm Cartridge, C8, 3/Pk			33
10-02-01491	OPTI-GUARD 3mm Cartridge, Silica, 3/Pk			33
10-02-01495	OPTI-GUARD 3mm PEEK/SS Holder			33
10-04-00039	Female Solvent Reservoir Filter for 1/8" OD Tubing, 2 µm, 5/Pk			15
04-00041	Female Solvent Reservoir Filter for 1/8" OD Tubing, 10 µm, 5/Pk			15
10-04-00044	Female Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 2 µm, 5/Pk			15
10-04-00046	Female Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 10 µm, 5/Pk			15
10-04-00050	OPTI-SOLV Analytical Solvent Reservoir Filter for 1/8" OD Tubing, 2 µm, 5/Pk			14
10-04-00053	OPTI-SOLV Analytical Solvent Reservoir Filter for 1/8" OD Tubing, 10 µm, 5/Pk			14
10-04-00056	OPTI-SOLV Analytical Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 2 µm, 5/Pk			14, 97
10-04-00058	OPTI-SOLV Analytical Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 10 µm, 5/Pk			14, 97
10-04-00062	OPTI-SOLV Prep Solvent Reservoir Filter for 1/8" OD Tubing, 2 µm, 5/Pk			14
10-04-00065	OPTI-SOLV Prep Solvent Reservoir Filter for 1/8" OD Tubing, 10 µm, 5/Pk			14
10-04-00068	OPTI-SOLV Prep Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 2 µm, 5/Pk			14, 97
10-04-00070	OPTI-SOLV Prep Solvent Reservoir Filter for 3/16" OD Tubing (Waters), 10 µm, 5/Pk			14, 97
10-04-00072	Solvent Reservoir Filter with 1/16" Tube Stem, 2 µm, 5/Pk			15
10-04-00073	Solvent Reservoir Filter with 1/16" Tube Stem, 10 µm, 5/Pk			15
10-04-00074	Solvent Reservoir Filter with 1/16" Tube Stem, 10 µm, 5/Pk			15
10-04-00076	Female Solvent Reservoir Filter for 1/16" OD Tubing, 2 µm, 5/Pk			15
10-04-00078	Female Solvent Reservoir Filter for 1/16" OD Tubing, 10 µm, 5/Pk			15
10-04-00080	OPTI-SOLV Analytical Solvent Reservoir Filter for 1/16" OD Tubing, 2 µm, 5/Pk			14
10-04-00082	OPTI-SOLV Analytical Solvent Reservoir Filter for 1/16" OD Tubing, 10 µm, 5/Pk			14
10-04-00095	OPTI-SOLV Mini Filter, 0.5 µm, 5/Pk			13
10-04-00097	OPTI-SOLV Mini Filter, 2 µm, 5/Pk			13
10-04-00103	OPTI-SOLV Replacement Frits, 2 µm, 10/Pk			12, 100
10-04-00109	OPTI-LOK LP Ferrule/Filter Assembly for 1/8" OD Tubing, PEEK			23

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OPTI-Part #	Description	OEM #	Price	Page #
<b>OPTIMIZE</b>				
10-04-00114	Solvent Reservoir Filter with 1/8" Tube Stem, 10 µm, 5/Pk			15, 97
10-04-00119	Solvent Reservoir Filter with 1/8" Tube Stem, 2 µm, 5/Pk			15, 97
10-04-00383	OPTI-SOLV In-Line Filter, 0.5 µm, Includes Hand-Tight PEEK Holder, Fittings & 2 Filter Elements			12, 100
10-04-00386	OPTI-SOLV In-Line Filter, 0.5 µm, Includes Hand-Tight PEEK Holder, Fittings & 2 Filter Elements			12, 100
10-04-00391	OPTI-SOLV In-Line Filter, 2 µm, Includes Hand-Tight PEEK Holder, Fittings & 2 Filter Elements			12, 100
10-06-00120	30 psi Back Pressure Regulator			28
10-06-00128	60 psi Back Pressure Regulator			28
10-06-00129	100 psi Back Pressure Regulator			28
10-06-00130	50 psi Back Pressure Regulator			28
10-06-00134	External Adjustment Regulator			28
10-08-00260	OPTI-LOK LP Plastic Fittings Kit			27
10-00140	SS Tubing Cutter			27
10-12-00143	1/16" OD x .006" ID x 10 cm SS Tubing			27
10-12-00145	1/16" OD x .006" ID x 6 cm SS Tubing			27
10-12-00148	1/16" OD x .010" ID x 10 cm SS Tubing			27
10-12-00150	1/16" OD x .010" ID x 30 cm SS Tubing			27
10-12-00152	1/16" OD x .020" ID x 10 ft SS Tubing			27
10-12-00155	1/16" OD x .020" ID x 20 cm SS Tubing			27
10-12-00157	1/16" OD x .020" ID x 6 cm SS Tubing			27
10-12-00160	1/16" OD x .030" ID x 10 cm SS Tubing			27
10-12-00162	1/16" OD x .030" ID x 6 cm SS Tubing			27
10-12-00165	1/16" OD x .040" ID x 10 cm SS Tubing			27
10-12-00167	1/16" OD x .040" ID x 6 cm SS Tubing			27
10-13-00170	1/16" OD x .006" ID x 50 ft PEEK Tubing			27
10-13-00174	1/8" OD x .062" ID x 50 ft PEEK Tubing			27
10-13-00177	1/16" OD x .010" ID x 50 ft PEEK Tubing			27
10-13-00181	1/16" OD x .040" ID x 50 ft PEEK Tubing			27
10-13-00186	1/16" OD x .020" ID x 50 ft PEEK Tubing			27
10-13-00187	1/16" OD x .030" ID x 50 ft PEEK Tubing			27
10-13-00191	1/16" OD x .030" ID x 50 ft PEEK Tubing			27
10-14-00194	1/16" OD x .010" ID x 50 ft Tefzel (ETFE) Tubing			26
10-14-00197	1/16" OD x .020" ID x 50 ft Tefzel (ETFE) Tubing			26
10-14-00200	1/16" OD x .030" ID x 50 ft Tefzel (ETFE) Tubing			26
10-14-00203	1/8" OD x .062" ID x 50 ft Tefzel (ETFE) Tubing			26

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OPTI-Part #	Description	OEM #	Price	Page #
<b>OPTIMIZE</b>				
10-15-00206	1/16" OD x .040" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00209	1/16" OD x .040" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00213	1/16" OD x .010" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00215	1/16" OD x .010" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00219	1/16" OD x .020" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00221	1/16" OD x .020" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00225	1/16" OD x .030" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00227	1/16" OD x .030" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00231	1/16" OD x .040" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00233	1/16" OD x .040" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00237	1/8" OD x .062" ID x 50 ft Teflon (PTFE) Tubing, Black			26
10-15-00240	1/8" OD x .062" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-15-00245	3/16" OD x .125" ID x 50 ft Teflon (PTFE) Tubing, Natural			26
10-20-00252	OPTI-LOK Plug, Black Acetal			21
10-20-00254	OPTI-LOK Plug, Black Acetal, 10/Pk			21
10-20-00256	OPTI-LOK Plug, Natural PEEK, 10/Pk			21
10-20-00259	OPTI-LOK I, Kel-F, 10/Pk			20
10-20-00262	OPTI-LOK 6K PEEK Union, .020" Thru			21
10-20-00264	OPTI-LOK I, PEEK			20
10-20-00266	OPTI-LOK Coupler, PEEK			21
10-20-00268	OPTI-LOK 6K Male Nut, PEEK, Knurled Head			20
10-20-00270	OPTI-LOK 6K Nuts & Ferrules, 10/Pk (10-20-00268 & 10-20-00269)			20
10-20-00272	OPTI-LOK 6K Hex Head Short Nuts & Ferrules, 10/Pk (10-20-00271 & 10-20-00269)			20
10-20-00274	OPTI-LOK 6K SS Nuts & PEEK Ferrules, 10/Pk (10-20-00273 & 10-20-00269)			20
10-20-00276	OPTI-LOK 6K Hex Head Long Nuts & Ferrules, 10/Pk (10-20-00275 & 10-20-00269)			20
10-20-00278	OPTI-LOK 6K Acetal Male Nuts & PEEK Ferrules, 10/Pk (10-20-00277 & 10-20-00269)			20
10-20-00288	OPTI-LOK 6K 10-32 Tee, .050" Thru, PEEK			21
10-20-00320	OPTI-LOK 6K 10-32 Cross, .050" Thru, PEEK			21
10-20-00331	OPTI-LOK 6K 1/4-28 SSI Style Male Nut & PEEK Ferrules, 10/Pk (10-20-00330 & 10-20-00269)			24, 89
10-21-00280	OPTI-LOK LP 1/4-28 Tee, .050" Thru, PEEK			23
10-21-00282	OPTI-LOK LP 1/4-28 Cross, .050" Thru, PEEK			23

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OPTI-Part #	Description	OEM #	Price	Page #
<b>OPTIMIZE</b>				
10-21-00284	OPTI-LOK LP Nut for .100" OD Tubing, Natural PEEK			22
10-21-00285	OPTI-LOK LP Nut for .100" OD Tubing, White Acetal			23
10-21-00286	OPTI-LOK LP 1/4-28 Tee, .062" Thru, PEEK			22
10-21-00290	OPTI-LOK LP Nut for 1/16" OD Tubing, Natural PEEK			22
10-21-00291	OPTI-LOK LP Nut for 1/16" OD Tubing, Natural PEEK Long			22
10-21-00292	OPTI-LOK LP Nut for 1/16" OD Tubing, Natural Tefzel			22
10-21-00294	OPTI-LOK LP Nut for 1/16" OD Tubing, with Counterbore, White Acetal			22
10-21-00296	OPTI-LOK LP Ferrule for 1/16" OD Tubing, Natural PEEK			22
10-21-00299	OPTI-LOK LP Nut for 1/16" OD Tubing, Teflon (PTFE)			22
10-21-00302	OPTI-LOK LP Ferrule for 1/16" OD Tubing, Black PEEK			22
10-21-00306	OPTI-LOK LP Nut for 1/8" OD Tubing, Kel-F			23
10-21-00308	OPTI-LOK LP Long Nut for 1/8" OD Tubing, Natural PEEK			23
10-21-00310	OPTI-LOK LP Nut for 1/8" OD Tubing, White Acetal			23
10-21-00312	OPTI-LOK LP Ferrule for 1/8" OD Tubing, Natural Tefzel			23
10-21-00316	OPTI-LOK LP Nut for 1/8" OD Tubing, Nylon Hex			23
10-21-00318	OPTI-LOK LP Ferrule for 1/8" OD Tubing, Teflon (PTFE)			23
10-21-00323	OPTI-LOK LP Union, Natural PEEK			23
10-21-00327	OPTI-LOK LP Hex 1/4-28 Union, Long, Natural Nylon			23
10-21-00336	OPTI-LOK LP 1/4-28 Union, .040" Thru, PEEK			23
10-21-00342	OPTI-LOK LP 1/4-28 Union, .020" Thru, PEEK			23
10-21-00344	OPTI-LOK LP 1/4-28 Union, .030" Thru, PEEK			23
10-22-00301	OPTI-LOK LP Ferrule for 1/16" OD Tubing Short (Metric), Natural Tefzel			24
10-22-00314	OPTI-LOK LP Nut for 1/8" OD Tubing, M6 (Metric), White Acetal			24
10-22-00319	OPTI-LOK LP Ferrule for 1/8" OD Tubing, Short (Metric), Natural Tefzel			24
10-22-00325	OPTI-LOK LP Union M6 (Metric), Natural Nylon			24
10-22-00329	OPTI-LOK 6K PEEK M6 (Metric) Male Nut with Knurled/Hex Head & Ferrules, 10/Pk (10-22-00328 & 10-20-00269)			24
10-23-00335	OPTI-LOK Adapter, Adapts 1/4-28 Male to 10-32 Parker Style Male, PEEK			19
10-23-00346	OPTI-LOK Adapter, Adapts 1/4-28 Male to M6 Male, (with Web), PEEK			19
10-23-00349	OPTI-LOK Adapter, Adapts 1/4-28 Male to Luer Male, PEEK			18
10-23-00351	OPTI-LOK Adapter, Adapts 1/4-28 Female to M6 Male, PEEK			18
10-23-00353	OPTI-LOK Adapter, Adapts 1/4-28 Female to Luer Male, PEEK			18
10-23-00355	OPTI-LOK Adapter, Adapts M6 Male to 10-32 Parker Style Male, PEEK			19
10-23-00357	OPTI-LOK Adapter, Adapts M6 Female to 10-32 Parker Style Male, PEEK			19

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OPTI-Part #	Description	OEM #	Price	Page #
<b>OPTIMIZE</b>				
10-23-00358	OPTI-LOK Adapter, Adapts 10-32 Parker Style Male to Luer Male, PEEK			19
10-23-00359	OPTI-LOK Adapter, Adapts 10-32 Parker Style Male to Luer Female, PEEK			19
10-23-00360	OPTI-LOK Adapter, Adapts M6 Male to Luer Female, PEEK			19
10-23-00363	OPTI-LOK Adapter, Adapts M6 Male to Luer Male, PEEK			19
10-23-00364	OPTI-LOK Adapter, Adapts 10-32 Parker Style Male to 1/4-28 Male Cone (SS Style), PEEK			19
10-23-00365	OPTI-LOK Adapter, Adapts 10-32 Parker Style Male to 1/4-28 Male Cone (SSI Style), SS			19
10-23-00366	OPTI-LOK Adapter, Adapts M6 Female to Luer Female, PEEK			17
10-23-00389	OPTI-LOK Adjustable Adapter, Adapts M6 Male to 10-32 Female, 2/Pk			17
10-24-00367	Optimize Universal Male Nut for 1/16" OD Tubing, M6 (Metric), 316 SS			24
10-24-00368	Optimize Universal Male Nut for 1/16" OD Tubing, M6 (Metric), 316 SS			24
10-24-00369	Optimize Universal Ferrule for 1/16" OD Tubing, PEEK			24
10-24-00370	Optimize Universal Ferrule for 1/16" OD Tubing, PEEK			24
10-24-00371	Optimize Universal Union for 1/16" OD Tubing, with Nuts & Ferrules, 10-32 Thread, .020" Thru, SS			21
10-24-00373	Optimize Universal Union for 1/16" OD Tubing, with Nuts & Ferrules, 10-32 Thread, .020" Thru, SS			21
10-24-00374	Optimize Universal Union for 1/16" OD Tubing, with Nuts & Ferrules, 10-32 Thread, .020" Thru, SS			21
10-24-00376	Optimize Universal SS 10-32 Nuts & SS Ferrules, 10/Pk (10-24-00367 & 10-24-00369)			21
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10-49-02004	OPTI-MAX Microbore 1/16" Diameter Ruby Ball/Sapphire Seat, PEEK Replacement Cartridge, for Low Flow Rate, Small Plunger Pumps, Fits xxx-5x-xxxxx and xxx-4x-xxxxx Series Housings, (2/Pk)			40
10-57-02004	OPTI-MAX Standard 1/8" Diameter Ceramic Ball & Seat, SS Replacement Cartridge, for Most Analytical Applications, Fits xxx-5x-xxxxx and xxx-4x-xxxxx Series Housings, (2/Pk)			40
10-57-02004	OPTI-MAX Standard 1/8" Diameter Ruby Ball/Sapphire Seat, PEEK Replacement Cartridge, for Most Analytical Applications, Fits xxx-5x-xxxxx and xxx-4x-xxxxx Series Housings, (2/Pk)			40
10-59-02004	OPTI-MAX Standard 1/8" Diameter Ruby Ball/Sapphire Seat, PEEK Replacement Cartridge, for Most Analytical Applications, Fits xxx-5x-xxxxx and xxx-4x-xxxxx Series Housings, (2/Pk)			40
10-67-02005	OPTI-MAX Extended Flow 3/16" Diameter Ceramic Ball & Seat, SS Replacement Cartridge, for Higher Flow Rate, Larger Plunger Pumps, Fits xxx-6x-xxxxx Series Housings, (2/Pk)			40
10-67-02005	OPTI-MAX Extended Flow 3/16" Diameter Ruby Ball/Sapphire Seat, SS Replacement Cartridge, for Higher Flow Rate, Larger Plunger Pumps, Fits xxx-6x-xxxxx Series Housings, (2/Pk)			40
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10-69-02005	OPTI-MAX Extended Flow 3/16" Diameter Ruby Ball/Sapphire Seat, PEEK Replacement Cartridge, for Higher Flow Rate, Larger Plunger Pumps, Fits xxx-6x-xxxxx Series Housings, (2/Pk)			40
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21-38-00434	Detritum Pump, Spectraflow 400	7200-0087		51
21-34-00434	Piston, Spectraflow 400	7200-0087		51
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21-49-00460	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, Spectraflow 400			50
21-56-00460	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, Spectraflow 400	7200-0062		50
21-57-00460	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, Spectraflow 400	7200-0062		50
21-58-00460	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, Spectraflow 400	7200-0062		50
21-59-00460	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, Spectraflow 400	7200-0062		50
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22-36-00483	OPTI-SEAL UHMW-PE Piston Seal, 112/112M, 10/Pk			54
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22-36-00487	ITB PTFE Piston Seal, 105 and 110 Prep, 10/Pk			54
22-36-00493	ITB PTFE Piston Seal, 100A, 110A/110B, 10/Pk			54
22-36-00495	ITB PTFE Piston Seal, 112/112M, 10/Pk			54
22-36-00497	ITB PTFE Piston Seal, 114/114M, 116, 126, 10/Pk			54
22-36-00499	OPTI-SEAL UHMW-PE Piston Seal, 100A, 110A/110B, 10/Pk			54
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23-57-00551	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 1330, 1350	125-0307		56
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24-56-00581	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58

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24-57-00581	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58
24-58-0057	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58
24-58-00581	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58
24-59-0057	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58
24-59-00581	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, (Analytical) Bischoff 2200, Anspec SM909, Alcott Micromeritics 760	2200-0230		58
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25-34-00595	Improved Ruby Piston, DQP, GPM-1, DRP, GPM-2, DX, AGP (Analytical), 2000, 4000	36904		61
25-36-00598	OPTI-SEAL UHMW-PE Piston Seal (Hastelloy C Spring), All Analytical, 10/Pk			61
25-36-00600	UHMW-PE Piston Seal (Elastomer O-Ring) All Analytical, 10/Pk			61
25-38-00602	Back-Up Seal, All Analytical, 10/Pk			61
25-38-00607	Tested Outlet Check Valve (Old Style), DQP, GPM-1, DRP	38272		61
25-38-00610	Tested Outlet Check Valve (New Style), GPM-2, DX, AGP (Analytical), 2000, 4000	42761		61
25-58-00613	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, GPM-1, DRP, GPM-2, DX, AGP (Analytical), 2000, 4000	38273		60
25-59-00612	OPTI-MAX Outlet Cartridge Check Valve (New Style), 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, GPM-2, DX, AGP (Analytical), 2000, 4000	42761		60
25-59-00616	OPTI-MAX Outlet Cartridge Check Valve (Old Style), 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, DQP, GPM-1, DRP	38272		60
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26-08-00622	HPLC First Aid Kit, 10 mL S/C Type Head			63
26-34-00624	Piston, 10 mL S/C Head [Gilson, Rainin HP, HPX, HPXL, SD200/300]	3650009		63
26-36-00630	ITB PTFE Piston Seal, 10 mL S/C Head [Gilson, Rainin HP, HPX, HPXL, SD200/300]	5463125095		63
26-36-00632	OPTI-SEAL UHMW-PE Piston Seal, 10 mL S/C Head [Gilson, Rainin HP, HPX, HPXL, SD200/300]	5463125895		63
26-36-00634	OPTI-SEAL UHMW-PE Piston Seal, 5 mL S/C Head [Gilson, Rainin HP, HPX, HPXL, SD200/300]	5463088863		63
26-36-00636	ITB PTFE Piston Seal, 5 mL S/C Head [Gilson, Rainin HP, HPX, HPXL, SD200/300]	5463088063		63
26-46-00647	OPTI-MAX Inlet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]			62
26-47-00647	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]			62
26-48-00647	OPTI-MAX Inlet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]			62
26-49-00647	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]			62
26-56-00647	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]	3645245		62
26-57-00647	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 5, 10 & 25 mL S/C Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]	3645245		62

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26-59-00647	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 5, 10 & 25 mL S/S Heads [Gilson, Rainin HP, HPX, HPXL, SD200/300]	3645245		62
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27-34-00658	Sapphire Plunger, HP-1050, HP-1100	5062-2441		68
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27-36-00663	OPTI-SEAL UHMW-PE Plunger Seal, HP-1090	5062-2494		68
27-36-00664	OPTI-SEAL UHMW-PE Plunger Seal, HP-1050, HP-1100	5062-2494		68
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27-36-01570	OPTI-SEAL UHMW-PE Plunger Seal, HP-1050, HP-1100	5062-8516		68
27-36-01571	OPTI-SEAL UHMW-PE Plunger Seal, HP-1050, HP-1100	5062-8516		68
27-36-01572	ITB PTFE Plunger Seal, HP-1050, HP-1100	79835-67101		67
27-36-01573	ITB PTFE Plunger Seal, HP-1050, HP-1100	79835-67101		67
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27-56-01330	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, HP-1050, HP-1100	01018-60008		67
27-57-01330	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, HP-1050, HP-1100	01018-60008		67
27-58-01330	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, HP-1050, HP-1100	01018-60008		67
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28-36-00685	ITB PTFE Piston Seal, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom), 10/Pk	885-1331		69
28-36-00689	ITB PTFE Piston Seal, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom), 10/Pk	885-1331		69
28-36-00690	OPTI-SEAL UHMW-PE Piston Seal, with Hastelloy C Spring, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom)	885-1331		69
28-36-00691	OPTI-SEAL UHMW-PE Piston Seal, with Hastelloy C Spring, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom)	885-1331		69
28-36-00692	OPTI-SEAL UHMW-PE Piston Seal, with Hastelloy C Spring, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom), 10/Pk	885-1331		69
28-36-00693	OPTI-SEAL UHMW-PE Piston Seal, with Hastelloy C Spring, 655, L-6000, L-6200, L-6200A, L-7100 (LaChrom), 10/Pk	885-1331		69
28-38-00699	Tested Inlet Check Valve, 655, L-6000, L-6200, L-6200A	885-1331		69
28-38-00699	Tested Outlet Check Valve, 655, L-6000, L-6200, L-6200A	885-1331		69
28-38-00700	Check Valve Refill Kit, 655, L-6000, L-6200, L-6200A, Refill	885-1331		69
28-46-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, SS Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
28-47-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
28-47-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
28-48-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, PEEK Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
28-49-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
28-49-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, 655, L-6000, L-6200, L-6200A	885-1331		69
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28-57-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 655, L-6000, L-6200, L-6200A			69
28-58-00712	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, 655, L-6000, L-6200, L-6200A			69
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28-47-02094	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, L-7100 (LaChrom)	810-1005		69
28-48-02094	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, PEEK Cartridge, L-7100 (LaChrom)	810-1005		69
28-49-02094	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, L-7100 (LaChrom)	810-1005		69
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29-36-01298	OPTI-SEAL UHMW-PE Piston Seal, Secondary, 2300, 2350 10/Pk			71
29-36-01304	ITB PTFE Piston Seal, Secondary, 2300, 2350, 10/Pk			71
29-36-01306	OPTI-SEAL UHMW-PE Piston Seal, Primary, 2300, 2350, 10/Pk			71
29-66-01344	OPTI-MAX EF Outlet Cartridge Check Valve 3/16" Ceramic Ball & Seat, SS Cartridge, 2300, 2350	60-2253-209		71
29-67-01344	OPTI-MAX EF Outlet Cartridge Check Valve 3/16" Ruby Ball/Sapphire Seat, SS Cartridge, 2300, 2350	60-2253-209		71
29-68-01344	OPTI-MAX EF Outlet Cartridge Check Valve 3/16" Ceramic Ball & Seat, PEEK Cartridge, 2300, 2350	60-2253-209		71
29-69-01344	OPTI-MAX EF Outlet Cartridge Check Valve 3/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, 2300, 2350	60-2253-209		71
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31-34-00738	Sapphire Plunger, All Analytical	801306		75
31-34-00740	Plunger Crosshead Spring, Minimetric	204040		75
31-36-00746	UHMW-PE Plunger Seal, Gold, All Analytical, 10/Pk			75
31-36-00750	Plunger Seal Replacement Kit, ITB	801598		75
31-36-00806	OPTI-SEAL UHMW-PE Plunger Seal, All Analytical	206234		75
31-36-00808	ITB PTFE Plunger Seal, All Analytical	206129001		75
31-38-00755	Tested Suction Check Valve, All Analytical	900947001		75
31-38-00757	Check Valve Rebuild Kit (All Internal Parts, Rebuilds 1)	900517		75
31-56-00764	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, All Analytical	900947002		74
31-57-00764	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, All Analytical	900947002		74
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33-32-01638	Calcium Cathode Lamp 3100 AA Spectrophotometer			79
33-34-00798	Piston (High Pressure), Model 250, Series 200, 410, 620, Integral 4000 (Manufactured After 12/89)	N260-0124		79
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33-36-00803	ITB PTFE Piston Seal (Low Pressure), Series 4, 400, 410, 620, Integral 4000, 10/Pk	0254-2330		79
33-36-00805	OPTI-SEAL UHMW-PE Piston Seal (Low Pressure), Series 4, 400, 410, 620, Integral 4000, 10/Pk	0254-2330		79
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33-36-01300	ITB PTFE Piston Seal (High Pressure), Model 250, Series 4, 200, 400, 410, 620, Integral 4000, Series 1, 2, 3, 3B, 10, 10/Pk	0254-2330		79
33-36-01302	OPTI-SEAL UHMW-PE Piston Seal (High Pressure), Model 250, Series 4, 200, 400, 410, 620, Integral 4000, Series 1, 2, 3, 3B, 10, 10/Pk	0254-2330		79
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34-34-00854	Sapphire Plunger, LC-6A	228-12904-93		83
34-34-01994	Plunger Housing, LC-10AT (Housing Only - Requires 10-AS Plunger Insert)	228-18745-00		83
34-36-00855	OPTI-SEAL UHMW-PE Plunger Seal, LC-600/LC-9A, LC-10AD, ESA Model 580	228-18745-00		83
34-36-00857	UHMW-PE/Elastomer Energized Plunger Seal, LC-600/LC-9A, LC-10AD	228-11999-00		83
34-36-00863	ITB PTFE Plunger Seal, LC-6A	228-11999-00		83
34-36-00865	OPTI-SEAL UHMW-PE Plunger Seal, LC-6A	228-11999-00		83
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34-36-00866	OPTI-SEAL UHMW-PE Plunger Seal, LC-10AS, LC-10AT, 10/Pk			83
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34-38-00877	Tested Inlet Check Valve, LC-6A, LC-10AS	228-12353-91		82
34-38-00884	Check Valve Rebuild Kit, LC-6A, LC-10AS, Rebuilds 2	228-11200-91		82
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34-49-00893	OPTI-MAX Outlet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, LC-600/LC-9A, LC-10AD/AT	228-18522-92		81
34-56-00893	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, LC-600/LC-9A, LC-10AD/AT, ESA Model 580			81
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34-57-00893	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, LC-600/LC-9A, LC-10AD/AT, ESA Model 580			81
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34-58-00907	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, LC-6A, LC-10AS	228-09054-93		81
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35-36-00919	OPTI-SEAL UHMW-PE Flush Seal, 8800, 8810, IsoChrom, P-Series, 10/Pk (Flush Seal)	A2963-0100		85
35-36-00921	ITB PTFE Flush Seal, 8800, 8810, IsoChrom, P-Series, 10/Pk (Flush Seal)	A2963-0100		85
35-36-00931	OPTI-SEAL UHMW-PE Piston Seal, 8800, 8810, IsoChrom, P-Series, 10/Pk	A2967-0100		85
35-36-00933	OPTI-SEAL UHMW-PE Piston Seal, 8000, 10/Pk	A2968-0100		86
35-36-00935	OPTI-SEAL UHMW-PE Piston Seal, 8700, 8700XR, 8750, 10/Pk	A2968-0100		86
35-36-00937	ITB PTFE Piston Seal, 8700, 8700XR, 8750, 10/Pk	A2968-0100		86
35-36-00939	ITB PTFE Piston Seal, 8800, 8810, IsoChrom, P-Series, 10/Pk	A2962-0100		85
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35-38-00944	Tested Transducer Check Valve, P-Series	A3990-010		85
35-38-00949	Tested Outlet Check Valve, 8700, 8800, 8810, IsoChrom	A3490-010		85
35-36-00956	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, 8700, 8800, 8810, IsoChrom, P-Series	A3495-010		84
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35-59-00956	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, 8700, 8800, 8810, IsoChrom, P-Series	A3495-010		84
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36-24-00969	SSI Style 1/4-28 Nut for 1/16" OD Tubing			89
36-01674	SSI Style SS Ferrule for 1/16" OD Tubing			89
36-34-01296	Sapphire Piston, 200 Series (without Self-Flushing Option)	12-0101		89
36-36-01300	ITB PTFE Piston Seal, 200 Series & Model 300, 10/Pk			89
36-36-01302	OPTI-SEAL UHMW-PE Piston Seal, 200 Series & Model 300, 10/Pk			89
36-56-00987	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, 200 Series & Model 300	02-0163		88
36-57-00987	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 200 Series & Model 300	02-0163		88
36-58-00987	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, 200 Series & Model 300	02-0163		88
36-59-00987	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, 200 Series & Model 300	02-0163		88
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38-36-01000	OPTI-SEAL UHMW-PE Piston Seal, 2010, 2510	00-997261-37		91
38-36-01002	ITB PTFE Piston Seal, 2010, 2510	00-997261-37		91
38-36-01553	ITB PTFE Piston Seal, 9000 Star			91
38-36-01555	OPTI-SEAL UHMW-PE Piston Seal, 9000 Star			91
38-38-01021	Tested Outlet Check Valve, 2010	00-997261-09		91
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38-56-01544	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, 2510	00-997554-19		90
38-57-01043	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 2010	00-997261-10		90
38-57-01544	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ruby Ball & Sapphire Seat, SS Cartridge, 2510	00-997554-19		90
38-58-01043	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, 2010	00-997261-10		90
38-58-01544	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, 2510	00-997554-19		90
38-59-01043	OPTI-MAX Outlet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, PEEK Cartridge, 2010	00-997261-10		90
38-59-01544	OPTI-MAX Inlet Cartridge Check Valve, 1/8" Ruby Ball & Sapphire Seat, PEEK Cartridge, 2510	00-997554-19		90
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39-08-01075	HPLC First Aid Kit, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA] (Flow Rates >10 mL/min)			101
39-10-01077	Plunger Insertion Tool	11042		97
39-10-01083	Seal Forming Tool	76765		97
39-10-01085	Slotted Nut Driver for 1/16" Compression Screws	76374		97
39-24-01090	Waters Type Compression Screw for 1/16" OD Tubing	05070		25, 97
39-24-01290	Waters Type PEEK Ferrule for 1/16" OD Tubing	21817		25, 97
39-30-01095	Liquid Seal, Black	05101		100
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39-30-01102	LPV, PTFE Washer	05126		100
39-30-01104	Syringe Barrel Seal	77347		100
39-30-01111	Spacer, Lower Needle Wash	05134		100
39-30-01114	PTFE Washer	05135		100
39-30-01116	WISP Needle, 712 and 715	77233		100
39-30-01118	PTFE O-Ring, 712 HPV	77301		100
39-30-01125	WISP Solvent Seal, Long			101
39-30-01129	WISP 712 Injector Rebuild Kit (Old Style)	34497		100
39-30-01132	WISP 715 Seal Pack Assembly Rebuild Kit	15657		100

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39-31-01138	Fluid Upgrade Kit, Standard Check Valves, 6K/6KA	25242		99
39-31-01144	Ball Plug	05061		99
39-31-01146	Priming Syringe	27629		99
39-31-01149	Syringe Priming Adapter/Tube: Luer Adapter & 1/8" ID Tubing (Easier to use than original nut & ferrule method)	60476		99
39-31-01152	Draw-Off Tube Assembly			98
39-31-01157	OPTI-PRIME Priming Valve			98
39-31-01171	Optimize Safety Syringe			98
39-31-01293	Threaded Seal Insert, M45, M45G, M501, 510, 590, 600/600E, 610	05098		99
39-32-01176	Zinc Lamp, 441 Detector	97723		101
39-32-01178	Quartz Lamp, 150C	75631		101
39-32-01180	Source Lamp, 401	48419		101
39-32-01187	Deuterium Lamp, 486 Detector	80678		101
39-32-01295	Source Lamp, 480, 481	99499		101
39-34-01191	Plunger, M45/45G, M501	26524		96
39-34-01195	Plunger Indicator Rod & Spring Kit, 2/Pk	69583		96
39-36-01207	ITB PTFE Plunger Seal, Black, 100 µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA], 10/Pk			96
39-36-01210	ITB PTFE Plunger Seal, Red, 100 µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA], 10/Pk			96
39-36-01213	ITB PTFE Plunger Seal, Tan, 100 µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA], 10/Pk			96
39-36-01215	ITB PTFE Plunger Seal, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA], 10/Pk			96
39-36-01217	OPTI-SEAL UHMW-PE Plunger Seal, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA], 10/Pk			96
39-36-01306	OPTI-SEAL UHMW-PE Plunger Seal, 100 µL Head [M45/45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA], 10/Pk			96
39-38-01221	Gasket Retainer	60435		95
39-38-01222	Washer	05090		95
39-38-01224	Inlet Check Valve	60495		95
39-38-01226	Inlet Check Valve Rebuild Kit, Rebuilds 2	25212		95
39-38-01228	Outlet Housing	05082		95
39-38-01230	Spring	05083		95
39-38-01233	Actuator Seat, PTFE	26016		95
39-38-01236	Actuator Outlet Check Valve Rebuild Kit, Rebuilds 2	05071		95
39-38-01239	Rulon Washer	60307		95
39-38-01244	Tested Extended Flow Inlet Check Valve, 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]			95
39-38-01245	Extended Flow Inlet Housing			95

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39-38-01249	Tested Extended Flow Oudet Check Valve, 400 µL (#4) & 900 µL (#6) Heads [Delta Prep 3000, 600/600E, 650]	33326		95
39-38-01308	Ruby Ball & Seat	25306		95
39-38-01323	Housing Seal	32706		95
39-38-01451	PEEK Washer (Replaces 39-38-01249)	00872		95
39-46-01950	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, SS Cartridge, 616	55845 & 24960		93
39-46-01980	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ceramic Ball & Seat, SS Cartridge, Backflush System			94
39-47-01950	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 616	55845 & 24960		93
39-47-01980	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, Backflush System			94
39-48-01909	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 625/626 Biocompatible	30543 & 24120		94
39-48-01950	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, 616	55845 & 24960		93
39-48-01980	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, SS Cartridge, Backflush System			94
39-49-01909	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, 625/626 Biocompatible	30543 & 24120		94
39-49-01950	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, 616	55845 & 24960		93
39-49-01980	OPTI-MAX Oudet Cartridge Check Valve, 1/16" Ruby Ball/Sapphire Seat, PEEK Cartridge, Backflush System			94
39-56-01139	Fluid Upgrade Kit, Cartridge Check Valves Ceramic Ball & Seat, SS Cartridges	25242		99
39-56-01256	OPTI-MAX Oudet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, SS Cartridge, 100 µL Head [M45, M45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA] & 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]	25216		93
39-57-01139	Fluid Upgrade Kit, Cartridge Check Valves Ruby Ball/Sapphire Seat, SS Cartridges	25242		99
39-57-01256	OPTI-MAX Oudet Cartridge Check Valve, 1/8" Ruby Ball/Sapphire Seat, SS Cartridge, 100 µL Head [M45, M45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA] & 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]	25216		93
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39-58-01256	OPTI-MAX Oudet Cartridge Check Valve, 1/8" Ceramic Ball & Seat, PEEK Cartridge, 100 µL Head [M45, M45G, M501, 510, 515, 590, 600/600E, 610, 6K/6KA] & 225 µL Head (#3) [510, 590, 600/600E, 610, 650, 6K/6KA]	25216		93
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# ORDERING INFORMATION

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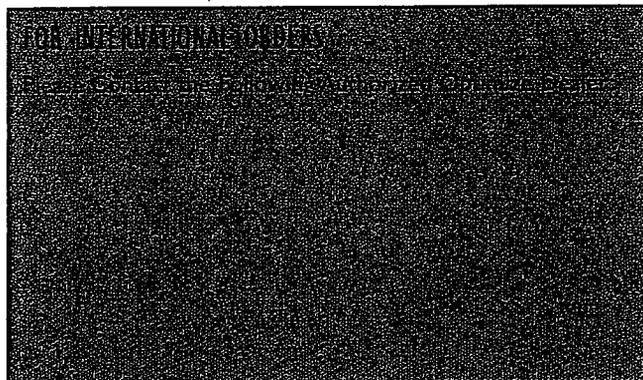
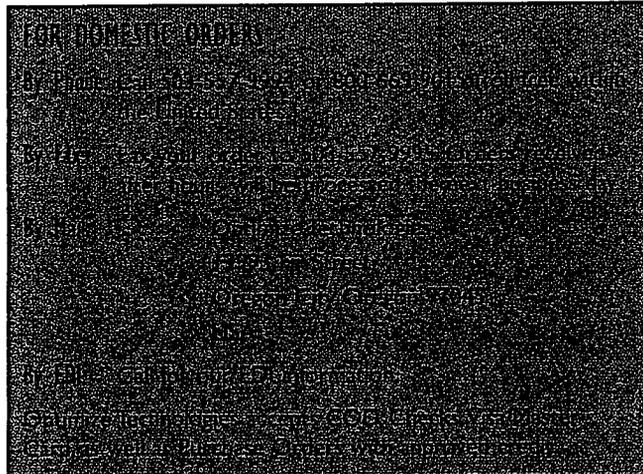
At Optimize Technologies, we guarantee that every product we sell will meet or exceed original equipment specifications. Every Optimize product you buy carries with it our full guarantee of satisfaction. If you should have a problem with any product, please contact Customer Service toll-free at 800-669-9015. A Return Manufacturer's Authorization number must be obtained before any product is returned to us. The RMA number allows us to properly identify returned goods, and to resolve problems quickly and efficiently. Optimize Technologies is not responsible for goods returned without an RMA number.

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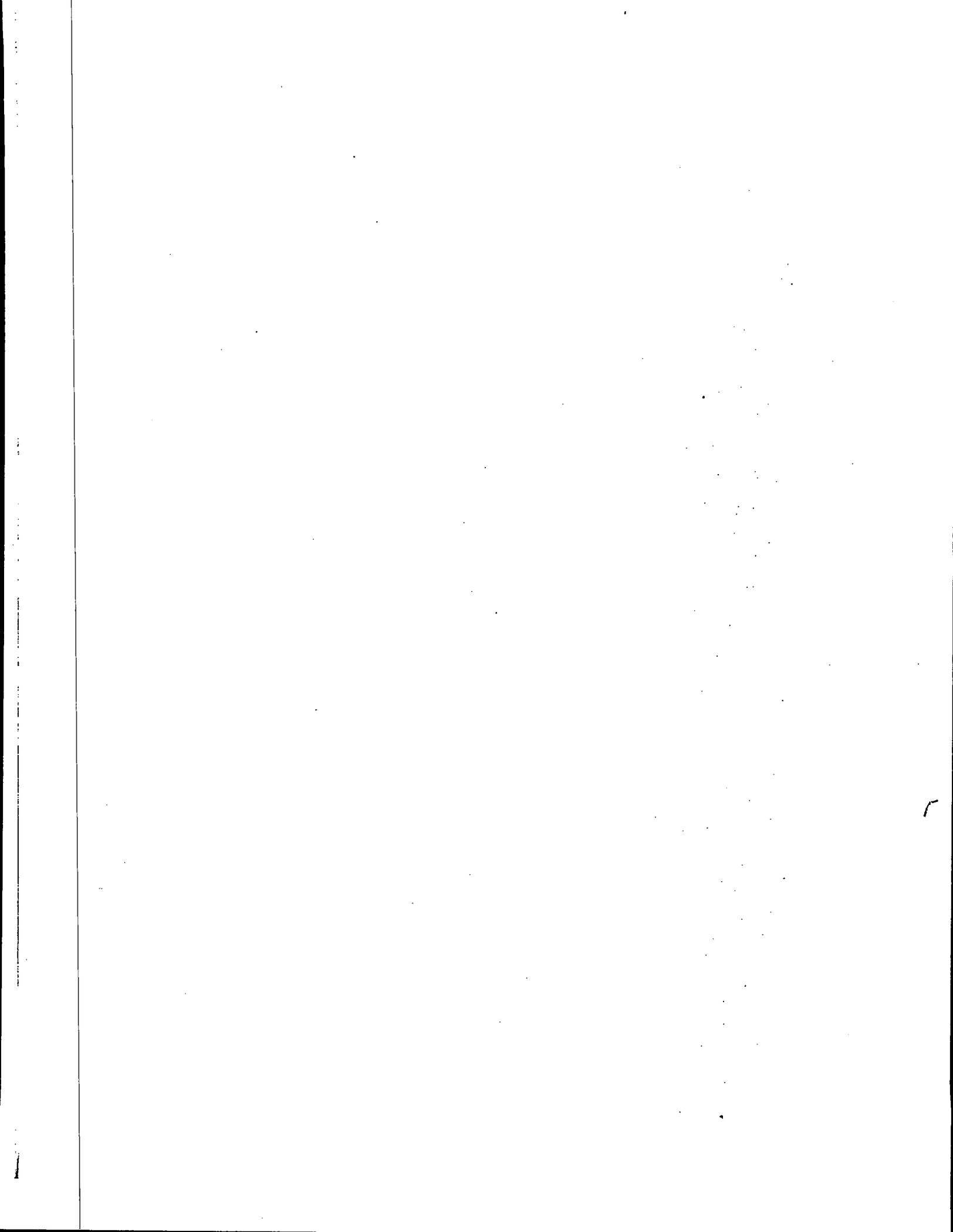
ORDERING INFORMATION



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**OPTIMIZE**  
TECHNOLOGIES

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800-669-9015  
<http://www.optimizech.com>

File No.: OPTI-6-2384

Date: 8/20/04

Atty/Secy: SPF/sar

Parties: Optimize Technologies, Inc. v. Wicom GmbH

Opposition No.: 91156666

The following documents have been received in the U.S. Patent and Trademark Office, ATTN: TTAB, on the date stamped hereon via first-class mail, with a signed Certificate of Mailing:

Opposer's Notice of Reliance Pursuant to Rule 2.122(d)(2) and 2.122(e)

A handwritten signature in black ink, appearing to be the initials 'SPF' followed by a stylized flourish.

# EXHIBIT 2



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APPEARANCES

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206.682.8100

1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
2 BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD  
3 -----

4 OPTIMIZE TECHNOLOGIES, INC., )  
5 )  
6 Opposer, )  
7 )  
8 vs. ) No. 91158331  
9 )  
10 )  
11 WICOM, GMBH, )  
12 )  
13 Applicant. )  
14 -----

15  
16 Deposition Upon Oral Examination Of  
17 DOUG FORD  
18 -----

19  
20  
21 August 17, 2004  
22 Seattle, Washington  
23

24 REPORTED BY: CONNIE FARANDA, RPR, CCR# 2240

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EXAMINATION INDEX

EXAMINATION BY:	PAGE NO.
Mr. Fricke	4

EXHIBIT INDEX

EX. NO.	DESCRIPTION	PAGE MARKED
1	Optimize Technologies catalog cover page and page 29	20

1 BE IT REMEMBERED that on Tuesday,  
2 August 17, 2004, at 1420 Fifth Avenue, Suite 2700, Seattle,  
3 Washington, at 10:00 a.m., before Connie Faranda, CCR, RPR,  
4 Notary Public in and for the State of Washington, appeared  
5 Doug Ford, the witness herein;

6 WHEREUPON, the following proceedings were  
7 had, to wit:

8  
9 <<<<<< >>>>>>

10  
11 DOUG FORD, having been first duly sworn  
12 by the Notary, deposed and  
13 testified as follows:

14  
15 EXAMINATION

16 BY MR. FRICKE:

17 Q Good morning. Can you please state your name?

18 A Doug Ford.

19 Q And can you spell your last name?

20 A F-O-R-D.

21 Q We're here for the opposition of Optimized  
22 Technologies, Inc., versus Wicom, W-I-C-O-M, GMBH, before  
23 the Trademark Board. And Mr. Ford, is that your  
24 understanding why you're here today?

25 A Yes.

1 Q Can you please identify what position you have  
2 with Optimize Technologies?

3 A I am the president and the owner that started  
4 the company.

5 Q Can you kind of give me a brief history of  
6 Optimize Technologies and how it began and when?

7 A Well, we started in September of 1985, in the  
8 field of chromatography. And we became involved with drug  
9 discovery and clinical instrumentation for pharmaceutical  
10 research at that time and made urine analyzers and various  
11 other products for chemical testing of fluids.

12 Q Can you describe what chromatography is, please?

13 A Chromatography -- the chrome is color, and it's  
14 the separation of the components, analogous to separating a  
15 solution that is colorful into separate components. So now  
16 there's gas chromatography and liquid chromatography, and  
17 it's the separation of either a gas or a liquid.

18 Q And have you been the president and owner of  
19 Optimize Technologies, Incorporated, since its inception?

20 A Yes.

21 Q How many employees does the company have?

22 A Currently around 25 to 30.

23 Q And where's it located at?

24 A In Oregon City, Oregon.

25 Q How many different products do you guys market

1 currently in the United States?

2 A Probably close to -- the broad range of --  
3 without counting the separate components, probably 200.

4 Q And how do you go about marketing your different  
5 products?

6 A The number is probably more like 500, I imagine,  
7 actually.

8 Q Okay.

9 A So we advertise, and we sell through dealers  
10 throughout the world and in the United States. And we  
11 advertise in the trade journals. The primary one is LCGC.

12 Q That's L --

13 A LCGC, which stands for Liquid Chromatography/Gas  
14 Chromatography. And trade shows. So that's the primary  
15 way, through distributors and their reps and then  
16 advertising and trade shows.

17 Q And you said you advertise. Is that throughout  
18 the United States?

19 A Well, that's a national publication. So that's  
20 where we advertise. And then it has a European publication  
21 as well, and we advertise in the European version of LCGC.

22 Q And what's the name of that publication?

23 A LCGC Europe, I believe.

24 Q And of the products that you sell, is it safe to  
25 assume that you sell them in interstate commerce?

1 A Yes.

2 Q And what trade names do you use in selling your  
3 products?

4 A Well, most of them have an "Opti." The  
5 trademark names are -- from the name Optimize Technologies,  
6 we use the "Opti," and it's from Opti-Guard, Opti-Lok, which  
7 is our finger-type fitting, and all sorts of Opti names.

8 Q And when you say "Opti," we're talking O-P-T-I,  
9 correct?

10 A Yes.

11 Q Now, you have several trademarks registered  
12 through the United States Trademark Office; is that correct?

13 A Yes.

14 Q Okay. In fact, you have O-P-T-I, which is  
15 registration number 2,048,831. That's for the Opti prefix  
16 itself. And do you market products using just the Opti  
17 name?

18 A No. But we couple it with a hyphen and another  
19 name behind it.

20 Q Okay. And how about Opti-Guard? Its  
21 registration number 2,100,804. Is that one of your  
22 trademarks?

23 A Yes, it is.

24 Q And what products do you market and sell under  
25 the Opti-Guard name?



1 A Yes.

2 Q And do you market products utilizing the  
3 Optimize Technologies trademark?

4 A Yes.

5 Q And can you describe which products you use in  
6 the Optimize Technologies?

7 A Well, that's all of our products encompassed  
8 under that heading.

9 Q Okay. So would it be fair to say Optimize  
10 Technologies is kind of the parent mark, and everything else  
11 is associated with the Optimize Technologies?

12 A Yes.

13 Q Now, you started back in 1985, correct?

14 A Yes.

15 Q Is this when you first started using the Opti or  
16 the Optimize marks?

17 A Yes, it is.

18 Q Do you remember which mark you first used?

19 A Opti-Lok would have been our first one.

20 Q Okay. Opti-Lok, what products did that pertain  
21 to?

22 A That pertained to all of the finger-type  
23 fittings that connected the tubing in the HPLC instrument.

24 Q Now, do customers associate your name with your  
25 products that you market and sell?

1 A Yes.

2 Q Okay. And how do you know that?

3 A Well, at trade shows, you know, we're very  
4 visible with all of our trademark names, the Opti's. And if  
5 you look in our distributors' catalogs, the Opti names are  
6 prominent. We get phone calls from people looking  
7 specifically for the Opti products. We've also had  
8 customers that have looked for the Opti and had to come back  
9 to us to get those.

10 Q Okay. And is there a particular type of  
11 customer that you actually market your products to?

12 A Yes. It's anybody in the HPLC -- anybody that  
13 uses HPLC as a technique to separate molecules would be a  
14 customer that we would be targeting our products toward,  
15 which involves universities, the petrochemical industry.  
16 Primarily the pharmaceutical industry is our biggest user  
17 base. Environmental testing. So it's a pretty broad  
18 industry, and we do primarily market to the pharmaceutical  
19 side of it.

20 Q Now, have you been using the Opti prefix mark  
21 continuously since the inception of your business?

22 A Absolutely.

23 Q Okay. Has there been any break in time when you  
24 have not used --

25 A No.

1 Q -- an Opti mark?

2 Okay. Are you aware of any other competitors  
3 using the Opti name in your business, your trade business?

4 A No, not in our -- not in the analytical  
5 chemistry side, no.

6 Q Okay. Now, a company called Wicom, W-I-C-O-M,  
7 GMBH, has requested registration of two different marks.  
8 One is the Opti-Light mark. Are you familiar with Wicom,  
9 W-I-C-O-M?

10 A Yes, I am.

11 Q And can you describe your familiarity with  
12 Wicom?

13 A They've been a dealer of ours probably since the  
14 late '80s or early '90s.

15 Q And where have they been a dealer?

16 A In Germany.

17 Q And how did you become associated with Wicom?

18 A We were looking for representation in Europe in  
19 each country, and they came to us at one of the trade shows  
20 and were interested in being one of our dealers.

21 Q Okay. And what products do they, I guess, sell  
22 for you in Germany?

23 A They have access to every product that we sell  
24 in the U.S. because we sell all of our products throughout  
25 the world. We don't let, you know, some products be sold

1 only in the U.S. or wherever. So all of our products can be  
2 sold everywhere. And he sells all of our check valves,  
3 pistons, plungers, pretty much the whole line of products  
4 but primarily the specific instrument components.

5 Q Okay. And do you have a continuing business  
6 relationship with Wicom?

7 A Yes, we do.

8 Q And that's just for European sales; is that  
9 correct?

10 A For Germany.

11 Q Germany only?

12 A Yes.

13 Q Okay. His other mark that he's attempting to  
14 register is the Opti-Flow mark. Are you aware of that mark?

15 A Yes.

16 Q Now, Opti-Flow he's attempting to register  
17 international class 9 in laboratory filters for purification  
18 and cleaning of fluid laboratory samples, and they're sold  
19 separately. Is that your understanding?

20 A Yes.

21 Q And do you market and sell products related to  
22 laboratory filters for purification and cleaning of fluid  
23 laboratory samples?

24 A Yes, we do. Our products can be used -- many of  
25 our packed beds can be used specifically for that purpose.

1 Q And under which trade name would you be  
2 marketing and selling products that would go towards  
3 laboratory filters for purification?

4 A Well, now his are a disposable, and ours would  
5 be a -- the Opti-Guard would be some, and some of our  
6 velocity line of products would also fit in that category.  
7 But all of his products as well as ours are used in the HPLC  
8 technique or any instrumentation in that field.

9 MR. FREHLING: Can we go off the record?

10 (Discussion off the record.)

11  
12 Q (By Mr. Fricke) The products you've been  
13 selling under your trademarks for laboratory filters, is it  
14 a variety of products?

15 A Yes.

16 Q And is it under a variety of trademarks?

17 A Well, primarily the Opti-Guard and the packed  
18 beds, the velocity, yes, there is a variety.

19 Q Okay. How long have you been using the  
20 Opti-Guard mark? According to the registration that we  
21 have, it was first used in January of 1994. Is that your  
22 recollection?

23 A It would be at least then, yes.

24 Q Okay. And once again, have you been using it  
25 continuously since January of 1994?

1 A Yes.

2 Q Okay. Now, the other mark is called the  
3 Opti-Light mark, being applied for by Wicom. Its goods and  
4 services, according to the registrations, are analytical  
5 devices and systems for use in chemical and physical  
6 analysis of solid, liquid, and gases compounds, and mixtures  
7 and structural and replacement parts there for. Are you  
8 familiar with that type of analytical device?

9 A Well, it sounds like it's in the same category  
10 as all of our components for chromatography.

11 Q Okay. And once again, what type of products  
12 would you be marketing and selling that would fulfill the  
13 marketing under that category of goods and services?

14 A Well, it seems to fit all of our components,  
15 analytical devices and systems and replacement parts. And  
16 the solid, liquid, and gas, that's all chromatography. So I  
17 would say all of our components would fit under that  
18 description.

19 Q And once again, all the products that we're  
20 talking about that you sell have an Opti prefix when you  
21 market and sell; is that correct?

22 A That's correct.

23 Q Is it your understanding that he intends to sell  
24 his devices to the same customers that you currently sell  
25 your devices to?

1 A Yes.

2 (Discussion off the record.)  
3

4 Q (By Mr. Fricke) According to the notice of  
5 opposition, you have continuously used the trademark O-P-T-I  
6 since as early as September 15th, 1985, and in interstate  
7 commerce since September 15th, 1985. Is that your testimony  
8 today?

9 A Yes.

10 Q How about the marks Opti-Guard, Opti-Max, and  
11 Opti-Seal, and Optimize Technologies; have they been used  
12 continuously since January of 1994, 1990, 1988, and  
13 October 15th, 1985, respectively?

14 A That's correct.

15 Q And is that also in interstate commerce since  
16 those same dates?

17 A Yes.

18 Q Okay. You also have some pending use  
19 applications namely Opti-Solv, O-P-T-I hyphen S-O-L-V, and  
20 Opti-Pak, O-P-T-I hyphen P-A-K. Are you currently marketing  
21 and selling products using those marks?

22 A Yes.

23 Q Okay. Have you been continuously using those  
24 marks since March of 2002 and February 1993 respectively?

25 A Yes.

1 Q Okay. Also in interstate commerce?

2 A Yes.

3 Q Is it your understanding that Wicom's goods are  
4 intended to be sold in the same channels of trade that you  
5 currently sell your goods in?

6 A Yes.

7 Q Is your consumer or class of consumers namely  
8 university research laboratories, biotech research  
9 laboratories, pharmaceutical manufacturers, crime  
10 investigation laboratories, hospitals, and other  
11 laboratories?

12 A Yes, any laboratory separating chemical  
13 solutions.

14 Q Okay. Basically performing liquid study  
15 analysis?

16 A Yes.

17 Q Okay.

18 (Discussion off the record.)

19

20 Q (By Mr. Fricke) Are there other uses that your  
21 devices are currently used for?

22 A Yes. They've ended up in a variety of other  
23 industries, such as at St. Louis in open heart surgery, the  
24 liquid handling components on the space shuttle urine  
25 analyzers. Clinical instrumentation, that was actually

1 quite a big field for us with Abbott Laboratories. We did  
2 all of the liquid handling ends on their TDX instrument.  
3 And many of those used our Opti products.

4 Q And how did you market to those users? Did they  
5 find you or you found them?

6 A They found us because the field of -- the  
7 chromatography field -- the components made for the  
8 chromatography field have to go to a high pressure, and they  
9 have to withstand a variety of chemicals. And it lends --  
10 the components used in our industry lend themselves to other  
11 industries because we've kind of covered all the bases.

12 Q Now, what efforts and expense have you taken to  
13 promote your marks?

14 A Advertising and then, of course, the trademarks  
15 through your office.

16 Q Okay. And do you believe you have established  
17 good will with your marks currently today?

18 A Yes.

19 Q And what do you rely upon to say that you have  
20 good will in your marks? Do you have any circumstantial  
21 evidence that people are associating your products with your  
22 marks?

23 A Well, I think Optimize Technologies has built  
24 quite a reputation in the industry of having the best  
25 quality. And you know, we're not ISO 9,000 registered.

1 However, we come -- the question never comes up within the  
2 large pharmaceutical community. Our products are well  
3 received, and we've won many awards. We were Abbott  
4 Laboratories' supplier of the year for two or three years  
5 running, and we've received other kudos from other  
6 companies. And the Opti name is a very valuable name to us  
7 and well recognized by the customer.

8 Q You believe the Opti name is associated with  
9 your products as a source of those goods?

10 A Yes.

11 Q Okay.

12 MR. FRICKE: We can go off the record.

13 (Discussion off the record.)

14  
15 Q (By Mr. Fricke) So let's go back and discuss  
16 the relationship between Wicom and your activity in Germany.  
17 Can you kind of expand upon your relationship and what  
18 happened in Germany and how he markets his products there?

19 A Well, Wicom sold our products and sold them  
20 under the Opti names to the customers. So the customers  
21 became quite well acquainted with the Opti-Guard, the  
22 Opti-Lok, the Opti-Solv, Opti-Max, all of those products.  
23 And the -- I'm sure the association throughout Europe --  
24 because all of our other dealers did the same thing, they  
25 all sold them as Opti products.

1 Q Okay. When he was selling Opti products, that  
2 was on permission by you in Germany; is that correct?

3 A Yes.

4 Q Okay. And then what happened subsequent to him  
5 doing that?

6 A Well, then we learned that he had come out with  
7 his line of filters, and he named them the Opti-Flow. And  
8 then I discussed that with him at a trade show and through  
9 an e-mail, that that wasn't -- that that would give  
10 confusion to the customer and to the industry that those --  
11 that would give the idea that those were manufactured by  
12 Optimize Technologies, and it would be quite confusing to  
13 the customers.

14 Q And it would basically be confusing as the  
15 source of the actual products; is that right?

16 A That's correct, on who the manufacturer was.

17 Q And you've never authorized him to utilize your  
18 names when he -- or your marks when he's selling products  
19 that are not yours; is that correct?

20 A That's correct, we've not authorized them.

21 Q Have you authorized anybody else --

22 A No, we never compromise the Opti mark. We've  
23 never authorized anyone to have an Opti product that is not  
24 manufactured by Optimize Technologies.

25 (Discussion off the record.)

1 (Exhibit No. 1 marked  
2 for identification.)  
3

4 Q (By Mr. Fricke) I'm going to show you what's  
5 marked as Exhibit 1. It's a two-page document. Do you  
6 recognize that document?

7 A Yes, do I.

8 Q Can you identify that for the record, please?

9 A Yes, that's our Opti-Flowmeter, which it's a  
10 page out of our catalog, 1997-1998 catalog, and then the  
11 catalog cover.

12 Q And go back to the second page where it says  
13 "Opti-Flow." Can you describe what the Opti-Flow product is  
14 shown on page 29 of this document?

15 A Yeah. The Opti-Flow is a digital flowmeter  
16 that's used to calibrate HPLC instruments. It could be used  
17 in any instrument that has a flow rate where the liquid  
18 flows through small capillary tubing.

19 Q And when did you market and sell the Opti-Flow?

20 A Well, in this -- it would have to be around the  
21 mid-'90s is when we came out with the product. Probably  
22 '95, '96. And then it appeared in this catalog.

23 Q And are you continually supporting this device  
24 today?

25 A We support the flowmeter, yes.

1 Q And where are your customers that have this  
2 device?

3 A Well, it was marketed throughout the world, and  
4 I don't know where all it was sold. But it was certainly  
5 available for sale through any of our dealers, which would  
6 have included Germany.

7 Q And would it include the United States also?

8 A Yes.

9 MR. FRICKE: Okay. I think we're done,  
10 unless you've got anything else.

11 THE WITNESS: No.

12 (Signature reserved.)

13 (Deposition concluded  
14 at 10:54 a.m.)

1 STATE OF WASHINGTON ) I, Connie Faranda,  
2 County of Pierce ) ss CCR# 2240, a duly  
3 authorized Notary  
4 Public in and for the  
5 State of Washington  
6 residing at University  
7 Place, do hereby certify:

8 I, the undersigned Officer of the Court, under my  
9 commission as a Notary Public in and for the State of  
10 Washington, hereby certify that the foregoing deposition  
11 upon oral examination of the witness named herein was taken  
12 stenographically before me and thereafter transcribed under  
13 my direction;

14 That the witness, before examination, was first duly  
15 sworn by me to testify truthfully;

16 That the transcript of the deposition is a full, true,  
17 and correct transcript of the testimony, including questions  
18 and answers and all objections, motions, and exceptions of  
19 counsel made and taken at the time of the foregoing  
20 examination;

21 That I am neither attorney for, nor a relative or  
22 employee of any of the parties to this action; further, that  
23 I am not a relative or employee of any attorney or counsel  
24 employed by the parties hereto, nor financially interested  
25 in its outcome.

IN WITNESS WHEREOF, I have hereunto set my hand and  
affixed my official seal this            day of  
, 2004.

Connie Faranda, CCR, RPR  
Notary Public in and for the State  
of Washington, residing at University  
Place.

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EXAMINATION INDEX

EXAMINATION BY:

Mr. Fricke

PAGE NO.

4

EXHIBIT INDEX

EX. NO.

DESCRIPTION

PAGE MARKED

1

Optimize Technologies  
catalog cover page and  
page 29

20

**SEATTLE  
DEPOSITION  
REPORTERS**

**EXHIBITS**

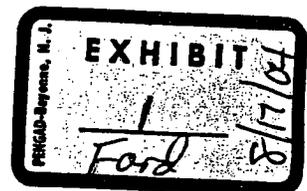


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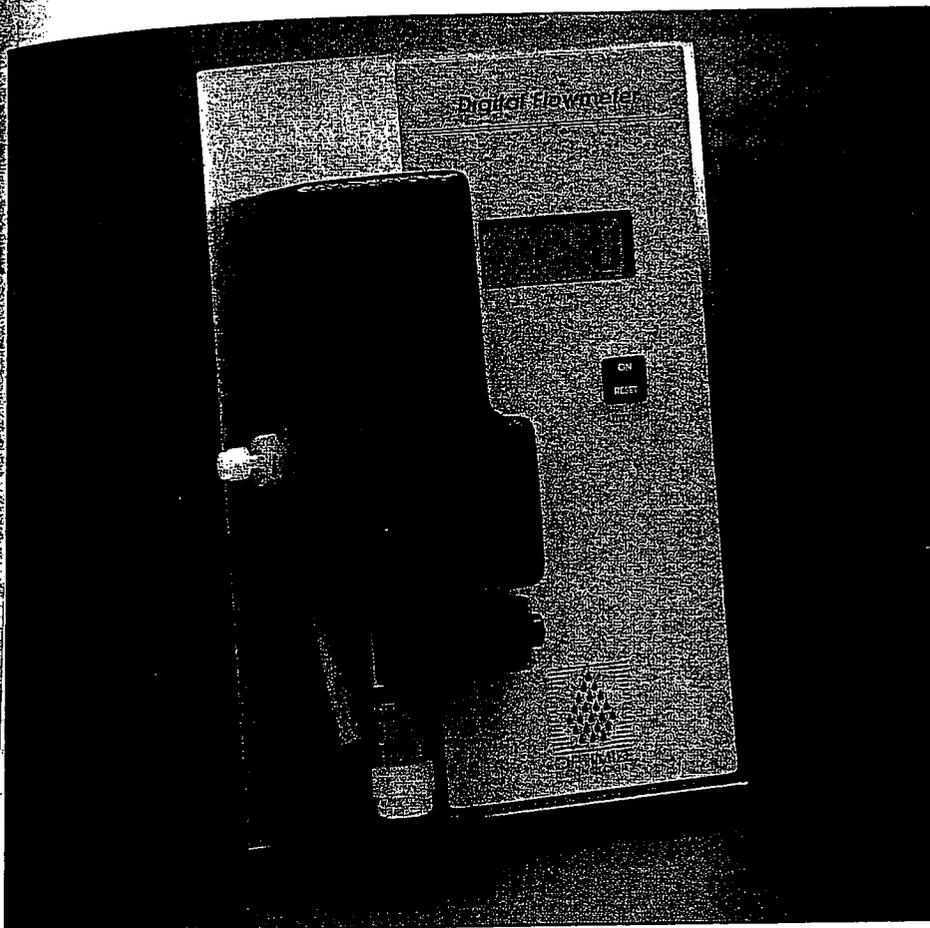
OPTIMIZE  
TECHNOLOGIES

Finest Liquid Chromatography  
&  
Fluid Handling  
Components  
1997-1998



# OPTI-FLOW™

Your chromatographic results depend on the capability of your HPLC system to deliver accurate flow rates. On most HPLC systems, however, there is no simple way to directly measure the flow rate being delivered; only indirect information such as back-pressure readings are readily available. With the OPTI-FLOW Digital Flowmeter for HPLC, accurate measurement of flow rate becomes a routine procedure. With OPTI-FLOW, you can perform standard ISO, GMP and GLP pump calibration requirements, as well as monitor post-detector flow volume, without interrupting the HPLC run in progress.



## OPTI-FLOW™ Flowmeter

OPTI-Part #	Description	Price
10-40-01677	OPTI-FLOW Package: Digital Liquid Flowmeter & Software [with 110V Adapter]	
10-40-01905	OPTI-FLOW Package: Digital Liquid Flowmeter & Software [CE Marked with 220V Adapter]	

### FEATURES

- True Volumetric-based results.
- NIST-traceable. (certificate provided)
- On-line monitoring facilitates troubleshooting of the flow rate without interruption of the run.
- Automatic flow rate update.
- Flow range: 0.100 to 30.0 mL/min
- Inert wetted surfaces: glass, PTFE and stainless steel.
- Microsoft Windows™ 3.0 or DOS software available.

### SPECIFICATIONS

- Accuracy: +/- 1%
- Repeatability: 0.5%
- 70 µL sample volume
- 110 or 220 volts

### SOFTWARE OPTION

- To fully automate the acquisition and archiving of flow rate data, Optimize offers a software package for DOS and Windows\*, which includes:
  - Software
  - RS232 module
  - 10' serial cable
  - 3' flowmeter cable
- \* Minimum Requirements: 286 PC and Windows 3.0 or higher.

# EXHIBIT 3

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

Optimize Technologies, Inc.,	:	
	:	
	:	
vs.	:	Opposition No. 91158331
	:	
Wicom GmbH,	:	Opposition No. 9115666
	:	
Applicant.	:	

**APPLICANT'S RESPONSES TO  
OPPOSERS' FIRST SET OF INTERROGATORIES**

Applicant, Wicom GmbH ("Applicant") hereby responds to the First Set of Interrogatories propounded by Optimize Technologies, Inc. ("Opposer") in Opposition No. 91158331 as follows:

**INTRODUCTION**

The following responses, while based on diligent exploration by Applicant and its counsel, are necessarily supported only by those facts and writings, presently and specifically known and readily available to Applicant. Applicant has not completed its investigation of all the facts related to the subject matter of this action, discovery, or its preparation for the Opposition proceeding. Applicant therefore makes these Responses without prejudice to its right to produce at any stage of these proceedings, including at trial, evidence of any facts or information that Applicant may later recall or discover. Applicant further reserves the right to change, amend or supplement any or all of the matters contained in these Responses with facts or information that it learns was omitted by inadvertence, mistake, excusable neglect, and as additional facts are ascertained, analyses are made, research is completed and contentions are made in this litigation.

These Responses also are made solely for the purpose of this action, and are subject to all objections as to competence, relevance, materiality, propriety and admissibility, and to any and all

other objections on any grounds that would require the exclusion of any statements contained herein if such interrogatory were asked of, or statements contained herein were made by, a witness present and testifying in this proceeding. All such objections and grounds are expressly reserved and may be interposed during the testimony period.

Applicant's Response to each individual Interrogatory is submitted without prejudice to, and without in any way waiving, the general objections listed below but not expressly set forth in that response. The assertion of any objection to an Interrogatory in any response below is neither intended as, nor shall in any way be deemed, a waiver of Applicant's right to assert that or any other objection at a later date. Moreover, no incidental or implied admissions are intended by the Responses below. The fact that Applicant has answered or objected to all or part of any Interrogatory should not be construed or taken as an admission that Applicant accepts or admits the existence of any purported facts set forth or assumed by such Interrogatory or that Applicant has waived or intended to waive any part of any objection to the Interrogatory.

#### **GENERAL OBJECTIONS**

1. Applicant objects to these interrogatories to the extent they encompass documents, information or communications protected from discovery on grounds of the attorney-client privilege and/or work product immunity and/or trial preparation material (herein generally referred to as "privilege").
2. Applicant objects to Opposers' instructions concerning privileged documents to the extent such instructions seek to require a description of the subject matter of a document or communication as would result in disclosure of the contents of privileged communications.
3. Applicant objects to these interrogatories to the extent they seek to impose an

obligation on Applicant which exceeds a litigant's discovery obligations as provided by the Federal Rules of Civil Procedure or the Trademark Rules of Practice.

4. Applicant objects to these interrogatories to the extent that they seek information which is a trade secret of Applicant, or which constitutes confidential business information of Applicant. Applicant will not produce any such documents until a suitable protective order is entered in this case.

5. Applicant objects to these interrogatories to the extent that they seek information pertaining to activities or events occurring outside the United States which are inapplicable to this proceeding.

### **INTERROGATORIES**

#### **Interrogatory No. 1:**

Identify the business or businesses of Applicant and each of its subsidiaries, parents, affiliates, divisions, and related companies. Your answer should include the name of each business, present business address, and place of incorporation.

#### **Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Without waiving its general and specific objections, Applicant states that its business is the sale of supplies of scientific and technical equipment including vials, caps, filters, valves, seals, and software to a broad market such as hospitals, paper industry, pharmaceutical industry, chemical industry, environmental industry and the petrol industry. It has no subsidiaries, parents or related companies.

**Interrogatory No. 2:**

A. Identify each company owned or controlled, in whole or in part, by Applicant that has participated in any way in the sale or promotion of goods or services under the OPTI-LIGHT Mark; and

B. In connection with each company identified in the answers to paragraph A of this interrogatory, state or describe how the company participates in the sale or promotion of goods or services under each OPTI-LIGHT Mark.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Without waiving its general or specific objections, applicant states that neither it nor any company owned or controlled by it has sold or promoted any goods or services in the United States under its OPTI-LIGHT mark.

**Interrogatory No. 3:**

Describe the circumstances under which Applicant first selected and adopted the OPTI-LIGHT Mark, and identify the person or persons who are most familiar with each of the following:

- A. The selection and adoption of the OPTI-LIGHT Mark;
- B. The use or intended use of the OPTI-LIGHT Mark;
- C. The advertising and promotion of the OPTI-LIGHT Mark;

D. The sale of goods by Applicant under the OPTI-LIGHT Mark; and

E. The distribution of Applicant's goods under the OPTI-LIGHT Mark.

**Response:**

The person most familiar with the selection by Applicant of the OPTI-LIGHT mark is Mr. Brian Fera. There has been no use, sales, advertising or distribution by Applicant in the United States of any goods under the OPTI-LIGHT mark. See also responses to Interrogatories Nos. 1 and 4 which are incorporated herein by reference.

**Interrogatory No. 4:**

Identify all marks that were considered at the time Applicant selected the OPTI-LIGHT Mark shown by the U.S. Trademark Application Serial No. 78/176,019. For each mark that was considered and rejected, state why the mark was rejected; and state the reasons that Applicant selected the OPTI-LIGHT Mark.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Without waving its general and specific objections, Applicant states that prior to filing its U.S. OPTI-LIGHT application which is the subject of this proceeding, Applicant did an online search of the USPTO database and an internet search. Those searches revealed hundreds of OPTI prefix marks and names but none which were considered to be confusingly similar to OPTI-LIGHT.

The USPTO also conducted a search during its prosecution of Applicant's OPTI-LIGHT

application and found there were no conflicting marks which would bar registration of OPTI-LIGHT.

**Interrogatory No. 5:**

List all forms of the OPTI-LIGHT Mark that have been used or adopted at any time by Applicant. For each mark listed, separately:

A. Identify all registrations and/or applications for registration filed with any governmental entity relating thereto that have been or are owned by Applicant;

and

B. Identify all documents referring to or relating to the registrations or applications identified in sub-part A of this interrogatory.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Applicant further objects to this Interrogatory to the extent that it seeks documents which are covered by the attorney-client privilege or work product immunity.

Without waiving its general or specific objections, Applicant states it has filed U.S. Application Serial No. 78/176,019.

**Interrogatory No. 6:**

For each form of the OPTI-LIGHT Mark listed in the answer to Interrogatory No. 5, separately:

A. Describe all products and services with which each form of the OPTI-LIGHT Mark has been used;

B. Describe all products and services with which Applicant intends to use the OPTI-LIGHT Mark in the future;

C. For each product or service with which a form of the OPTI-LIGHT Mark has been used, state the date of first use anywhere;

D. For each product or service, state the date of first use in commerce;

E. State whether each mark is presently in use in commerce, and if so, list all products and services with which each mark is presently in use;

F. Identify the states in which the products have been sold or services have been rendered by Applicant under each form of the OPTI-LIGHT Mark; and

G. Identify all documents supporting, referring or relating to the facts set forth in this interrogatory.

**Response:**

B. Chromatography chemicals; analytical devices and systems for use in the chemical and physical analysis of solid, liquid and gaseous compounds and mixtures and structural and replacement parts therefore.

A., C - F The mark OPTI-LIGHT has not been used in the United States in connection with any products or services.

G. U.S. Application Serial No. 78/176,019.

**Interrogatory No. 7:**

For each form of the OPTI-LIGHT Mark listed in the answer to Interrogatory No. 5, separately:

A. Describe the methods by which Applicant has advertised or promoted the sale of its products or services, identify for each mark, including, without limitation, the types of media in which such advertising and promotion has been conducted;

B. Identify all documents that have been used by Applicant for advertising or promotional purposes or that bear or include each mark; and

C. For each document identified in the response of sub-part B of this interrogatory, state the inclusive dates of use, the geographic area (city and state) of distribution, and the quantity distributed.

**Response:**

The mark OPTI-LIGHT has not yet been advertised or promoted by Applicant in the United States.

**Interrogatory No. 8:**

For each form of the OPTI-LIGHT Mark listed in the answer to Interrogatory No. 5, separately state whether any search, inquiry, investigation, or marketing survey has been or is being conducted relating to the registration of each mark or to determine the availability or registrability of each mark and, if so, for each identify all documents relating to the search or investigation including, but not limited to, each report referring to or reflecting the search or investigation.

**Response:**

See General Objection No. 1 and Response to Interrogatory No. 4 above.

**Interrogatory No. 9:**

For each form of the OPTI-LIGHT Mark listed in the answer to Interrogatory No. 5,

separately:

A. Identify the class of consumers who are the prospective purchasers of Applicant's goods or services identified with each mark;

B. Indicate the approximate fractional or percentage dollar amount of sales, to each class of consumer;

C. State the method by which Applicant has provided and/or is providing products or has provided services identified with each form of the OPTI-LIGHT Mark to each class of consumer, including, without limitation, channels of trade utilized and/or being utilized by Applicant; and

D. Identify all documents, supporting, referring or relating to any of the facts set forth in response to this interrogatory.

**Response:**

A. Applicant's prospective purchasers of the goods identified in connection with its OPTI-LIGHT application are the broad industry categories identified in its Response to Interrogatory No. 1.

B-D. No sales or services in the U.S. have been made by Applicant in connection with its OPTI-LIGHT mark.

**Interrogatory No. 10:**

For each product or service listed in answer to Interrogatory No. 6:

A. Describe each and every way in which each mark is used; and

B. Identify each and every document and thing that Applicant contends to constitute use of each mark.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither

relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b) Federal Rules of Civil Procedure.

See Response to Interrogatory No. 6.

**Interrogatory No. 11:**

List the persons or companies that Applicant is aware of that are using a form of the OPTI-LIGHT Mark. For each person or company identified, provide the following information:

A. Describe each and every way in which the Mark is being used; and

B. Identify all documents, referring or relating to any of the facts set forth in response to this interrogatory.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Applicant is not aware of any person or company in the U.S. that is using Applicant's OPTI-LIGHT mark.

**Interrogatory No. 12:**

A. Fully describe Applicant's knowledge of Opposer, including the nature of Opposer's business, Applicant's business, Applicant's business dealings with Opposer and communications between Applicant and Opposer concerning Opposer's use of Opposer's Marks;

B. Identify all documents referring or relating to any of the facts set forth in response to this interrogatory.

**Response:**

Applicant objects to this Interrogatory to the extent that it seeks information which is neither

relevant to the subject matter of this litigation nor calculated to lead to the discovery of admissible evidence and is outside the scope of Rule 26(b)(1) Federal Rules of Civil Procedure.

Applicant objects to the term Opposer's Marks in that its "definition" is vague, ambiguous and incapable of being understood as stated. Applicant further objects to this Interrogatory to the extent that it seeks information which is protected by the attorney-client privilege or work product immunity.

Without waiving its general or specific objections, Applicant states that it is aware that Opposer manufactures and distributes products in the high performance liquid chromatography field.

With respect to activities in the U.S., Applicant and Opposer have had e-mail correspondence in which Applicant disputed any likelihood of confusion between its OPTI-LIGHT mark and any alleged mark of Opposer.

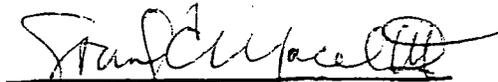
**VERIFICATION**

Henn Ar. Fera

Dr. Brian Fera hereby declares under penalty of perjury under the laws of the United States of America that he is a representative of Applicant; his official title is CEO; that the foregoing responses to Opposers' First Set of Interrogatories are answered by him as a representative of Wicom GmbH ("Wicom"), that he does not have personal knowledge of all the subject matter of the interrogatories and does not believe anyone possesses personal knowledge of all such questions; that said responses are based upon information derived by Wicom's employees and representatives; and that to the best of his knowledge and belief said responses are true and correct.



The above objections are entered by Applicant through it's counsel.



Stanley C. Macel, III  
Connolly Bove Lodge & Hutz LLP  
1007 North Orange Street  
P.O. Box 2207  
Wilmington, DE 19899  
(302) 658-9141

Attorneys for Applicant

DATED: June , 2004

# EXHIBIT 4

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

<b>OPTIMIZE TECHNOLOGIES, INC.,</b>	:	
<b>Opposer,</b>	:	
	:	
v.	:	<b>Opposition Nos. 91156666</b>
	:	<b>91158331</b>
<b>WICOM GMBH,</b>	:	
	:	
<b>Applicant</b>	:	
	:	

**APPLICANT'S RESPONSES TO OPPOSER'S  
SECOND SET OF INTERROGATORIES**

Applicant, Wicom GmbH ("Applicant") hereby responds to the Second Set of Interrogatories propounded by Optimize Technologies, Inc. ("Opposer") as follows:

**INTRODUCTION**

The following responses, while based on diligent exploration by Applicant and its counsel, are necessarily supported only by those facts and writings, presently and specifically known and readily available to Applicant. Applicant has not completed its investigation of all the facts related to the subject matter of this action, discovery, or its preparation for the Opposition proceeding. Applicant therefore makes these Responses without prejudice to its right to produce at any stage of these proceedings, including at trial, evidence of any facts or information that Applicant may later recall or discover. Applicant further reserves the right to change, amend or supplement any or all of the matters contained in these Responses with facts or information that it learns was omitted by inadvertence, mistake, excusable neglect, and as additional facts are ascertained, analyses are made, research is completed and contentions are made in this litigation.

**INTERROGATORY NO. 14:**

Identify with specificity the chromatography chemicals by their common commercial names that the Applicant is selling, or intends to sell under the OPTIFLOW Mark.

**ANSWER:**

None.

**INTERROGATORY NO. 15:**

Identify by their common commercial name the laboratory filters for purification and cleaning of laboratory samples for which Applicant is selling, or intends to sell under the OPTIFLOW Mark.

**ANSWER:**

Syringe filters.

**INTERROGATORY NO. 16:**

Identify by their common commercial name the analytical devices and systems for use in chemical and physical analysis of solid, liquid, and gaseous compounds and mixtures and structural and replacement parts therefore for which Applicant is selling, or intends to sell under the OPTI-LIGHT Mark.

**ANSWER:**

Xenon lamps, deuterium lamps and other lamps for general laboratory use.

1 ANSWER:

2  
3 Dated this 21<sup>st</sup> day of May, 2004.

4 CHRISTENSEN O'CONNOR  
5 JOHNSON KINDNESS<sup>PLC</sup>

6 Everett E. Fruehling

7 James W. Anable, Registration No. 26,827  
8 Steven P. Fricke, Registration No. 47,579  
9 Everett E. Fruehling  
10 Attorneys for Opposer Optimize  
11 Technologies, Inc.

12 VERIFICATION

13 I certify that, on behalf of Applicant, Wicom GmbH, I have read the foregoing  
14 OPPOSER'S SECOND SET OF INTERROGATORIES 13 TO 16, in Opposition  
15 Nos. 91156666 and 91158331, and believe them to be true and correct.

16 DATED this 21<sup>st</sup> day of June 2004.

17 Wicom GmbH

18 By: Dr. B. J. J.

19 Title: CEO

20  
21 ANSWERS AND OBJECTIONS SERVED this 24<sup>TH</sup> day of June 2004.  
22 The undersigned attorney has read the foregoing OPPOSER'S SECOND SET OF  
23 INTERROGATORIES 13 TO 16, in Opposition Nos. 91156666 and 91158331, and they  
24 comply with Fed. R. Civ. P. 33.

25 Stan Mace  
26 Attorneys for Applicant  
27 Wicom GmbH

OPPOSER'S SECOND SET OF  
INTERROGATORIES TO APPLICANT - 7  
OPT024PL7.DOC

CHRISTENSEN  
O'CONNOR  
JOHNSON  
KINDNESS<sup>PLC</sup>

LAW OFFICES  
1400 Fifth Avenue, Suite 2400  
Seattle, WA 98101-2347  
TELEPHONE: 206.462.8100

# EXHIBIT 5

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

Optimize Technologies, Inc.,	:	
	:	
	:	
vs.	:	Opposition No. 91158331
	:	
Wicom GmbH,	:	Opposition No. 91156666
	:	
Applicant.	:	

**APPLICANT'S RESPONSES TO  
OPPOSERS' FIRST SET OF REQUESTS FOR ADMISSIONS**

Applicant, Wicom GmbH ("Applicant") hereby responds to the First Set of Requests for Admissions propounded by Optimize Technologies, Inc. ("Opposer") in Opposition No. 91158331 as follows:

**INTRODUCTION AND GENERAL OBJECTIONS**

Applicant hereby specifically incorporates, as if fully set forth herein as applicable to these Requests, the Introduction and General Objections contained in Applicant's Responses to Opposers' First Set of Interrogatories served concurrently herewith.

**RESPONSES TO REQUESTS FOR ADMISSIONS**

For each of the following numbered requests, Applicant is asked to "admit or deny that"

1. Applicant is the distributor for Opposer's products in Germany.

**Response:** Denied

2. Applicant is a distributor in Germany for Opposer's products bearing the name or

**Response:** Denied

7. Applicant is a distributor in Germany for Opposer's products bearing the name or mark identical to OPTI-SOLV.

**Response:** Denied

8. Applicant is a distributor in Germany for Opposer's products bearing the name or mark that includes OPTI.

**Response:** Denied

9. Applicant was aware of Opposer and Opposer's OPTI-GUARD Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Admitted

10. Applicant was aware of Opposer and Opposer's OPTI-MAX Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Admitted

11. Applicant was aware of Opposer and Opposer's OPTI-SEAL Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Admitted

12. Applicant was aware of Opposer and Opposer's OPTIMIZE TECHNOLOGIES Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Admitted

13. Applicant was aware of Opposer and Opposer's OPTI-PAK Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Denied

14. Applicant was aware of Opposer and Opposer's OPTI-SOLV Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

**Response:** Admitted

15. Applicant was aware of Opposer and Opposer's OPTI Mark at the time Applicant filed to register the OPTI-LIGHT Mark.

23. Applicant's OPTI-LIGHT Mark incorporates Opposer's mark OPTI, U.S.

Trademark Registration No. 2,048,831.

**Response:** Denied.

24. Applicant seeks to register the OPTI-LIGHT mark for "analytical devices and systems for use in the chemical and physical analysis of solid, liquid and gaseous compounds and mixtures and structural and replacement parts therefore."

**Response:** Admitted.

25. Applicant's "analytical devices and systems for use in the chemical and physical analysis of solid, liquid and gaseous compounds and mixtures and structural and replacement parts therefore" overlap or encompass Opposer's liquid transfer components of chemical analysis equipment.

**Response:** Applicant objects to this request and is unable to admit or deny it on the grounds that it is vague and Applicant is unable to understand what Opposer refers to as "Opposer's liquid transfer components of chemical analysis equipment".

26. That there is no agreement between Applicant and Opposer, wherein Opposer

consents to Applicant's use of the OPTI-LIGHT Mark or any other mark incorporating the term OPTI within the United States.

**Response:** Admitted.

27. That Opposer's use of the OPTI Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Denied.

28. That Opposer's use of the OPTI-GUARD Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Admitted.

29. That Opposer's use of the OPTI-MAX Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Admitted.

30. That Opposer's use of the OPTI-SEAL Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Admitted.

31. That Opposer's use of the OPTIMIZE TECHNOLOGIES Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Admitted.

32. That Opposer's use of the OPTI-PAK Mark precedes any use Applicant have for the OPTI-LIGHT Mark.

**Response:** Applicant has no knowledge of any OPTI-PAK mark and therefore can not admit or deny this request.

33. That Opposer's use of the OPTI-SOLV Mark precedes any use Applicant may have for the OPTI-LIGHT Mark.

**Response:** Admitted.

34. That the OPTI-LIGHT Mark is not concurrently used in the U.S. marketplace.

**Response:** Admitted.

35. That Applicant's "analytical devices and systems for use in the chemical and physical analysis of solid, liquid and gaseous compounds and mixtures and structural and replacement parts therefore," for which Applicant intends to use the OPTI-LIGHT Mark, may be used in laboratories where High-Performance Liquid Chromatography equipment is also use.

**Response:** Admitted.

Connolly Bove Lodge & Hutz LLP



Stanley C. Madel, III, Esquire  
1007 North Orange Street  
P.O. Box 2207  
Wilmington, DE 19899  
(302) 658-9141  
Attorneys for Applicant

DATED: June 9, 2004

# EXHIBIT 6

## Everett Fruehling

---

**From:** Doug Ford [dford.optimize@worldnet.att.net]  
**Sent:** Wednesday, July 21, 2004 11:20 AM  
**To:** Everett E. Fruehling  
**Subject:** Fw: OPTI-FLOW

----- Original Message -----

From: "Doug Ford" <dford.optimize@worldnet.att.net>  
To: <brian\_fera@wicom.de>  
Cc: "Andy Chitty" <andyc@optimizetech.com>; "Fergus Travers" <fergus@optimizetech.com>; "Bela Barany" <bela@optimizetech.com>  
Sent: Friday, October 12, 2001 1:08 AM  
Subject: OPTI-FLOW

> Dear Brian:

> In case you are not aware, the OPTI - prefix is a registered trademark of

> Optimize Technologies, Inc. We have many registered trademarks as well as

> trademarks that use the OPTI - prefix in the name. Please look on page 30

> of the 1999/2000 catalog supplement for a complete listing of those marks.

> In addition, Optimize Technologies has used the name OPTI-FLOW as a trademarked name for our flow meter, which appears on page 29 of the 1997/1998 catalog. I am sure it was merely an oversight on your part when

> you used the name OPTI-FLOW for your syringe filter name. Surely you understand that this will cause a lot of unnecessary confusion for Optimize

> Technologies' customers and since you are an Optimize dealer it can only add

> to the confusion. In fact, it would appear that this product is manufactured by Optimize Technologies.

> I am requesting that you take immediate action to change the name of your filter product so that there is no infringement by WICOM with respect to the

> OPTI - mark. It is further requested that you send a notification of such

> change to any partner or distributor of WICOM's. Please let me know if you

> have any questions on this matter and when you will be making the name change and notifying your partners.

> I continue to value our partnership and I look forward to continued prosperity for both companies.

> Best regards,

> Doug Ford

OPTI000001

## Everett Fruehling

---

**From:** Doug Ford [dford.optimize@worldnet.att.net]  
**Sent:** Wednesday, July 21, 2004 10:47 AM  
**To:** Everett E. Fruehling  
**Subject:** Fw:

----- Original Message -----

From: "Wicom GmbH Brian Fera" <bfera@wicom.biz>  
To: "Doug Ford" <dford.optimize@worldnet.att.net>  
Sent: Friday, June 07, 2002 7:01 AM  
Subject: AW:

> Dear Doug:  
>  
> Thank you very much for your very detailed and constructive email. The  
> change of first name to last name in communication was because I did  
> not  
> feel treated with respect by BELA. Of course the first name is fine  
> between  
> for the communication between you and me.  
>  
> We have done a careful analysis of the trademark situation before we  
> have  
> chosen OPTIFLOW. The suffix "OPTI" is used by hundreds and hundreds  
> of  
> trademarks which means that the letters after OPTI are the important  
> ones  
> (This is the opinion of our patent lawyer as well). The letter FLOW  
> are  
> the  
> important letters. There is no likelihood of any confusion. The filter  
> market  
> is a different market to the market of Optimize products as well.  
>  
> Doug, we are 100% sure that we paid those invoices. We always faxed  
> through  
> statements about how to assign the money. It is usual if a supplier  
> does  
> not  
> get this to ask for a copy of the statement. As agreed we have proven  
> that  
> we paid those invoices. We both agreed that we would not have to  
> supply  
> more  
> and more payment informations.  
>  
> We have done all financial statements for those years already and closed  
> the  
> books for those years.  
> Let me propose that we pay you the two invoices you faxed too us and  
> you  
> write of the rest.  
>  
> Of course I would have liked to see you while you were in Germany. But  
> I  
> was  
> unhappy that Bely asked such a short time before and his question was  
> .  
>  
> The improve the sales it is true that the communication needs to be  
> improved

OPTI000002

> i.e. I received no information about your 2002 catalogue and no copy  
of  
it.  
> Nobody at Wicom has a copy of your newest catalogue.  
>  
> About one and a half years ago we foundend a company for field service  
on  
> side. The aim is to cover all Europe. The figures of this company go  
very  
> well. I understand that you have the treat your partner equally  
because of  
> the U.S. anti trust laws. But you could set up a special discount  
program  
> for all serving companies because they have a better choice what to  
install  
> or not. We have some very big full comprehensive service contracts.  
The  
> customer pays us a fixed amount per year which covers all labor and  
spare  
to  
> keep his HPLC's running. It is up to us which check valves we use. But  
the  
> budgetd are very very low because the accounts are big. It often comes  
down  
> to prices. No dought the own's checks valves do work as well.  
>  
> Best regards,  
> Brian  
>  
>  
> -----Ursprüngliche Nachricht-----  
> Von: Doug Ford [mailto:dford.optimize@worldnet.att.net]  
> Gesendet: Freitag, 7. Juni 2002 06:26  
> An: brian\_fera@wicom.de  
> Cc: Fergus Travers; Bela Barany  
> Betreff:  
>  
>  
> Dear Dr. Fera:  
>  
> I have read your e-mails and it seems as if you hold a lot of  
resentment  
> toward Optimize Technologies, Bela, and perhaps Fergus and myself. As  
a  
> company and as individuals we strive to be fair and honest with our  
> customers, dealers, vendors and all business partners. I am sorry  
that  
you  
> see us as falling short on those ideals. We will try harder to  
communicate  
> things more clearly. It is my policy at Optimize that all personal  
> interactions be handled on a first name basis, and as far as Optimize  
is  
> concerned It is quite appropriate to call any one of us by our first  
name.  
> It may be the informal attitude of the West Coast but we really don't  
mean  
> to offend anyone by being so informal. I was raised in a very small  
fishing  
> village where every person knew each other by their first name. I am  
sorry  
> for offending you by taking the liberty of using only the first name  
and  
not  
> the proper surname. On the other hand, Bela is keenly aware of the  
German  
> culture and out of respect he addressed you as "Dr. Fera" for over a

OPTI000003

year  
as  
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both  
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by  
> subsequent e-mails. I am hoping my explanation will suffice so that  
both  
> companies can move on to other pressing issues.

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> I did in fact cancel the 10% rebate program effective when my e-mail  
was  
> sent to you on May 19th, 2002. You brought up the point of U.S.  
Antitrust  
> laws and it is our policy to follow those laws to the letter. It is  
> precisely for those reasons and the fact that we strive to be fair  
that we  
> work very hard at treating all our dealers the same. We do not grant  
> exclusive sales territories. The rebate program  
> was spelled out very clearly by Bela in an e-mail and the criteria for  
the  
> rebate were: 1) Sales goals per month. 2) The exchange rate. 3) An  
> evaluation of the rebate plan each month on an ongoing basis by  
Optimize.

I  
> would like to see the agreement and the  
> version you have that grants you the 10% rebate for a one-year period.

I  
> have looked through all of our records and I cannot find where any  
Optimize  
> employee sent such an agreement to you or where we informed you by  
e-mail.  
> I also can find no record where we could have implied the one-year  
period.

> I am sorry for the misunderstanding but the program was put in place  
only  
as  
> a temporary measure to help with the disparity in the exchange rate  
and to  
> jump-start sales. I hope the program helped both WICOM and Optimize  
achieve  
> higher sales during that period than we would have otherwise and that  
sales  
> will continue to grow as a result of it.

>  
> I am very disappointed that you chose to use OPTI-FLOW as a mark for  
your  
> syringe filters. As I mentioned earlier, OPTI is a prefixed owned and  
> protected by Optimize Technologies for our HPLC related products.

Syringe  
> filters would certainly fit in that category, but as you correctly  
pointed  
> out, gasoline would not. Trademark laws do not allow us to protect  
every  
> broad range of product made in the world but they do allow us to  
protect  
> those products  
> that are classified as HPLC and related liquid handling components.

As a  
> dealer of Optimize  
> products I would have hoped you would have picked a name that wasn't  
already  
> in use by us. We not only use and protect the prefix OPTI but we have  
a  
> product called OPTI-FLOW. You are correct that our OPTI-FLOW is not  
the  
> same product as your OPTI-FLOW but nonetheless we are both in the

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HPLC /

> Fluid Transfer business and WICOM does sell OPTI products that are  
> manufactured by Optimize Technologies. Surely you must admit that  
customers  
> may be confused as to who manufactures which OPTI-FLOW. I would hope  
you  
> can see our point of view and respect it in the future. Think for a  
minute  
> how you would you feel if we named a product "WICOM Filters." I do  
not  
feel  
> that Bela owes you an apology for pointing out our position on this  
matter.  
> He was acting responsibly in his position. I would think that if  
anyone  
was  
> due an apology it would be Optimize for WICOM using the OPTI name. I  
would  
> also think you would apologize to Bela for continually berating him in  
> e-mail after e-mail. We do not treat people that way at Optimize and  
I  
ask  
> you again to be respectful and professional.  
>  
> I see that you are working with Fergus (not a Mrs. by the way) on  
sorting  
> out to which invoices your wire transfers were to be applied. It is  
true  
> that our Accounts Receivable department worked very diligently to  
apply  
the  
> wire transfers to the correct invoices. In some cases WICOM specified  
which  
> invoices the money was to be applied and in other cases it was not  
> specified. By standard accounting practices we applied all  
unspecified  
> money to the oldest invoices. We have to apply your payments  
somewhere,  
so  
> please always specify to which invoices to apply the payments. I hope  
you  
> will continue to work with us on sorting this out and then in the  
future  
we  
> can keep this from happening  
> again. I can assure you that we have every intention of allowing  
those  
> rebates earned while the 10% rebate program was in effect. I am  
insisting  
> we reconcile your current account before we further confuse the issue  
with  
> the earned rebates. Hopefully you can understand that we want our  
> accounting to be perfectly accurate.  
>  
> I can assure you that WICOM was well represented by Optimize during  
the  
> Analytica show. I was personally in the booth and it was very clear  
that  
> WICOM was one of our dealers in Germany and we referred many customers  
to  
> you. Bela tried to set up a meeting with you so that he and I could  
meet  
> with you during Analytica. I was hoping to improve relations between  
the  
> companies. Your reply to his e-mail was, "I don't have any time next  
> Wednesday for a talk with you guys. I have appointments with more  
important

OPTI000005

> partners." I am sorry that you feel we are not important enough to  
meet  
> with you. I do think these matters are very important. I was hoping  
to  
> discuss such issues as trade shows and leads, the rebate program, web  
> pages, and how we might work together to grow business in a mutually  
> beneficial way. All of these issues are very important and  
> as a result of not allowing us to meet in person with you we end up  
trying  
> to discuss these issues via e-mail. As we can both see, this is not  
the  
> correct way to put aside differences and build a healthy business  
> partnership. I was also hoping to discuss the fact that we are not  
being  
> petty over the \$6.80. The \$6.80 and a few other strange amounts seem  
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> anomalies since they are not consistently subtracted from every wire  
> transfer. For the most part we get the full amount that you send.  
Fergus  
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> I truly wish there were no bad feelings between both companies and I  
know  
> that when we work together both WICOM and Optimize will prosper. We  
can  
be  
> many times more successful by putting the negative feelings aside and  
attack  
> the WICOM German market together as a unified force.  
>  
> Best regards,  
>  
> Doug  
>  
>  
>  
>  
>  
>

OPTI000006

## Everett Fruehling

---

**From:** Doug Ford [dford.optimize@worldnet.att.net]  
**Sent:** Wednesday, July 21, 2004 11:15 AM  
**To:** Everett E. Fruehling  
**Subject:** Fw:

----- Original Message -----

**From:** "Doug Ford" <dford.optimize@worldnet.att.net>  
**To:** <brian\_fera@wicom.de>  
**Cc:** "Fergus Travers" <fergus@optimizetech.com>; "Bela Barany" <bela@optimizetech.com>  
**Sent:** Thursday, June 06, 2002 9:26 PM

> Dear Dr. Fera:  
>  
> I have read your e-mails and it seems as if you hold a lot of  
resentment  
> toward Optimize Technologies, Bela, and perhaps Fergus and myself. As  
a  
> company and as individuals we strive to be fair and honest with our  
> customers, dealers, vendors and all business partners. I am sorry  
that  
you  
> see us as falling short on those ideals. We will try harder to  
communicate  
> things more clearly. It is my policy at Optimize that all personal  
> interactions be handled on a first name basis, and as far as Optimize  
is  
> concerned It is quite appropriate to call any one of us by our first  
name.  
> It may be the informal attitude of the West Coast but we really don't  
mean  
> to offend anyone by being so informal. I was raised in a very small  
fishing  
> village where every person knew each other by their first name. I am  
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> for offending you by taking the liberty of using only the first name  
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> the proper surname. On the other hand, Bela is keenly aware of the  
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> culture and out of respect he addressed you as "Dr. Fera" for over a  
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both  
> companies can move on to other pressing issues.  
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> work very hard at treating all our dealers the same. We do not grant  
> exclusive sales territories. The rebate program

> was spelled out very clearly by Bela in an e-mail and the criteria for  
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Syringe  
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HPLC /

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>

> Best regards,

>

> Doug

>

>

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