

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE TO
(Amendment No. 6)

(Rule 14d-100)

TENDER OFFER STATEMENT UNDER SECTION 14(d)(1) OR 13(e)(1)
OF THE SECURITIES EXCHANGE ACT OF 1934

THERMA-WAVE, INC.

(Name of subject company (Issuer))

KLA-TENCOR CORPORATION
FENWAY ACQUISITION CORPORATION

(Names of Filing Persons (Offerors))

Common Stock, \$0.01 par value per share
Series B Convertible Preferred Stock, \$0.01 par value per share
(Title of classes of securities)

88343A108
NA
(CUSIP number of classes of securities)

Jeffrey L. Hall
Chief Financial Officer
KLA-Tencor Corporation
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Copies to:
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1600 El Camino Real
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(Name, address, and telephone number of person authorized to receive notices and communications on behalf of Filing Persons)

CALCULATION OF FILING FEE

| Transaction Valuation(1) | Amount of Filing Fee(2) |
|--------------------------|-------------------------|
| \$73,954,744 | \$ 7,914 |

- (1) Estimated for purposes of calculating the filing fee only. This amount is based upon an estimate of the maximum number of shares of Common Stock and Series B Convertible Preferred Stock of Therma-Wave to be purchased pursuant to the tender offer at the tender offer price of \$1.65 per share of Common Stock and \$1.65 per share of Common Stock into which each share of Series B Convertible Preferred Stock is convertible.
- (2) The amount of the filing fee calculated in accordance with the Securities Exchange Act of 1934, as amended, equals \$107.00 for each \$1,000,000 of value.
- Check the box if any part of the fee is offset as provided by Rule 0-11(a)(2) and identify the filing with which the offsetting fee was previously paid. Identify the previous filing by registration statement number, or the form or schedule and the date of its filing.

Amount Previously Paid: \$ 7,914 Filing Party: KLA-Tencor Corporation and Fenway Acquisition Corporation
Form of Registration No.: Schedule TO Date Filed: January 18, 2007

Check the box if the filing relates solely to preliminary communications made before the commencement of the tender offer.

Check the appropriate boxes below to designate any transactions to which the statement relates:

- third party tender offer subject to Rule 14d-1
 issuer tender offer subject to Rule 13e-4
 going private transaction subject to Rule 13e-3
 amendment to Schedule 13D under Rule 13d-2

Check the following box if the filing is a final amendment reporting the results of the tender offer:

This Amendment No. 6 to Tender Offer Statement on Schedule TO (this "Amendment") is filed by KLA-Tencor Corporation, a Delaware corporation ("Parent"), and Fenway Acquisition Corporation, a Delaware corporation and a wholly-owned subsidiary of Parent ("Purchaser"). This Amendment relates to the offer by Purchaser to purchase all of the outstanding shares of common stock, par value \$0.01 per share ("Common Shares"), of Therma-Wave, Inc., a Delaware corporation (the "Company"), at \$1.65 per Common Share, net to the seller in cash without interest, less any required withholding taxes, and all the outstanding shares of Series B Convertible Preferred Stock, par value \$0.01 per share ("Preferred Shares"), of the Company at \$1.65 per Common Share into which each Preferred Share is convertible at the time of the consummation of the Offer, net to the seller in cash without interest, less any required withholding taxes, upon the terms and subject to the conditions set forth in the Offer to Purchase dated January 18, 2007 (the "Offer to Purchase") and in the related Letter of Transmittal, copies of which are attached as Exhibits (a)(1)(i) and (a)(1)(ii) (which, together with any amendments or supplements thereto, collectively constitute the "Offer"). Capitalized terms used and not defined herein shall have the meanings assigned to such terms in the Offer to Purchase.

The information set forth in the Offer to Purchase and the related Letter of Transmittal is incorporated herein by reference with respect to Items 1 through 9 and 11 of this Schedule TO, except that such information is hereby amended and supplemented to the extent specifically provided herein.

Items 1 through 9, and Item 11.

Items 8 and 11 of the Schedule TO are hereby amended and supplemented by adding the following text thereto:

"The subsequent offering period of the Offer expired at 5:00 p.m., New York City time, on Thursday, May 24, 2007. According to the depository for the Offer, as of 5:00 p.m., New York City time, on Thursday, May 24, 2007, a total of 33,536,043 Common Shares and 10,400 Preferred Shares were validly tendered in the initial and subsequent offering periods of the Offer.

On May 21, 2007, Purchaser directed the Company to convert the 10,400 Preferred Shares tendered in the initial offering period into 6,764,825 Common Shares pursuant to the Certificate of Designation of Rights, Preferences and Privileges of Series B Convertible Preferred Stock of Therma-Wave, Inc., which shares were issued to Purchaser on May 22, 2007. Following the expiration of the subsequent offering period and the conversion of the Preferred Shares into Common Shares, Purchaser held 40,300,868 Common Shares, which represent approximately 91.5% of all outstanding Common Shares.

On May 25, 2007, Parent announced that the merger of Purchaser with and into the Company had closed on May 24, 2007. In connection with the Merger, each outstanding Share not tendered in the Offer (other than Shares held by Parent, the Company or any of their respective subsidiaries, or shares held by stockholders who properly perfect appraisal rights under Delaware law) was converted into the right to receive \$1.65 per Share in cash, without interest, less any required withholding taxes. The Company is the surviving corporation of the merger and is a wholly-owned subsidiary of Parent.

The full text of the press release issued by Parent announcing the closing of the acquisition of the Company is attached hereto as Exhibit (a)(5)(i) and is incorporated herein by reference."

Item 12. Exhibits.

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| (a)(1)(i) | Offer to Purchase, dated January 18, 2007.* |
| (a)(1)(ii) | Form of Letter of Transmittal.* |
| (a)(1)(iii) | Form of Notice of Guaranteed Delivery.* |
| (a)(1)(iv) | Form of Letter to Brokers, Dealers, Commercial Banks, Trust Companies and Other Nominees.* |
| (a)(1)(v) | Form of Letter to Clients for use by Brokers, Dealers, Commercial Banks, Trust and Other Nominees.* |
| (a)(1)(vi) | Guidelines for Certification of Taxpayer Identification Number on Substitute Form W-9.* |
| (a)(5)(i) | Press Release issued by Parent on May 25, 2007. |
| (b) | None. |
| (d)(1) | Agreement and Plan of Merger, dated January 7, 2007, among Parent, Purchaser and the Company.* |
| (d)(2) | Tender and Support Agreement, dated January 7, 2007, among Parent, Purchaser, the Company and each shareholder party thereto.* |
| (d)(3) | Amended and Restated Mutual Nondisclosure Agreement, dated May 15, 2006, by and between Therma-Wave, Inc. and Parent Corporation.* |
| (g) | None. |
| (h) | None. |

* Previously Filed.

Item 13. Information Required by Schedule 13 E-3.

Not applicable.

SIGNATURE

After due inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: May 25, 2007

KLA-TENCOR CORPORATION

By: /s/ Brian M. Martin

Brian M. Martin

Senior Vice President and General Counsel

Exhibit Index

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- (g) None.
- (h) None.

* Previously Filed.

NEWS RELEASE

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FOR IMMEDIATE RELEASE

KLA-TENCOR COMPLETES ACQUISITION OF THERMA-WAVE

SAN JOSE, CA, May 25, 2007 — KLA-Tencor Corporation (NasdaqGS: KLAC) today announced it has completed its acquisition of Therma-Wave Corporation (Nasdaq: TWAV).

“We are pleased to welcome Therma-Wave as part of KLA-Tencor,” stated Rick Wallace, CEO. “The addition of Therma-Wave’s products and expertise gives our customers an expanded offering of metrology solutions to meet their process control needs.”

About KLA-Tencor:

KLA-Tencor is the world leader in yield management and process control solutions for semiconductor manufacturing and related industries. Headquartered in San Jose, Calif., the company has sales and service offices around the world. An S&P 500 company, KLA-Tencor is traded on the NASDAQ Global Select Market under the symbol KLAC. Additional information about the company is available on the Internet at <http://www.kla-tencor.com>, which website is not part of this press release.

Cautionary Statement Regarding Forward-Looking Statements

This news release contains certain forward-looking statements within the meaning of the “safe harbor” provisions of the United States Private Securities Litigation Reform Act of 1995 and federal securities law. Such forward-looking statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Those statements that make reference to expectations, predictions, beliefs, and assumptions should be considered forward-looking statements. These statements include, but are not limited to, those associated with the strengthening of KLA-Tencor’s product portfolio and the delivery of value to KLA-Tencor’s customers. These statements involve risks and uncertainties including those associated with the integration of Therma-Wave, changes in laws or regulations and other similar factors. Further information on potential factors that could affect KLA-Tencor’s business is contained in its reports on file with the Securities and Exchange Commission, including its Form 10-K for the fiscal year ended June 30, 2006 and its Form 10-Q for the quarter ended March 31, 2007. KLA-Tencor is under no obligation to (and expressly disclaims any such obligation to) update or alter its forward-looking statements whether as a result of new information, future events or otherwise.

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