

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 11-K

(mark one)

- Annual Report Pursuant to Section 15(d) of the Securities Exchange Act of 1934 for the Fiscal Year Ended December 31, 2004
- Transition Report Pursuant to Section 15(d) of the Securities Exchange Act of 1934

Commission File Number 1-8002

THERMO ELECTRON CORPORATION CHOICE PLAN

- A. Full title of the plan and address of the plan, if different from that of the issuer named below:

Thermo Electron Corporation Choice Plan

- B. Name of issuer of the securities held pursuant to the plan and the address of the principal executive office:

Thermo Electron Corporation
81 Wyman Street
P.O. Box 9046
Waltham, Massachusetts 02454-9046

**Thermo Electron Corporation Choice Plan
December 31, 2004 and 2003**

Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the employee benefit plan) have duly caused this annual report to be signed by the undersigned hereunto duly authorized.

THERMO ELECTRON CORPORATION CHOICE PLAN

By: Thermo Electron Corporation, Pension Committee

By: /s/ Peter M. Wilver
Peter M. Wilver
Chief Financial Officer and Member of the Plan Administrator

Date: June 27, 2005

Thermo Electron Corporation

Choice Plan

**Financial Statements and Supplementary
Information**

December 31, 2004 and 2003

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December 31, 2004 and 2003**

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*Other supplemental schedules required by Section 2520-103.10 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974 have been omitted because they are not applicable.

Thermo Electron Corporation Choice Plan
Report of Independent Registered Public Accounting Firm

To the Participants, Administrator and Pension Committee of
Thermo Electron Corporation Choice Plan

In our opinion, the accompanying statements of net assets available for benefits and the related statement of changes in net assets available for benefits present fairly, in all material respects, the net assets available for benefits of Thermo Electron Corporation Choice Plan (the "Plan") at December 31, 2004 and 2003, and the changes in net assets available for benefits for the year ended December 31, 2004 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule H, line 4i - schedule of assets (held at end of year) is presented for the purpose of additional analysis and is not a required part of the basic financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

PricewaterhouseCoopers LLP

Boston, Massachusetts
June 16, 2005

Thermo Electron Corporation Choice Plan
Statements of Net Assets Available for Benefits
December 31, 2004 and 2003

	<u>2004</u>	<u>2003</u>
Assets		
Investments, at fair value	\$440,863,541	\$427,399,405
Loans to participants	<u>4,753,201</u>	<u>5,636,340</u>
	<u>445,616,742</u>	<u>433,035,745</u>
Receivables		
Employer contributions	592,222	712,594
Participant contributions	1,169,561	1,442,413
Accrued income	<u>1,175</u>	<u>548</u>
	<u>1,762,958</u>	<u>2,155,555</u>
 Net assets available for benefits	 <u>\$447,379,700</u>	 <u>\$435,191,300</u>

See accompanying notes to financial statements.

Thermo Electron Corporation Choice Plan
Statement of Changes in Net Assets Available for Benefits
For the Year Ended December 31, 2004

Addition to net assets attributed to investment income	
Interest and dividends	\$ 11,802,787
Net appreciation in fair value of investments	<u>33,116,814</u>
Total investment income	<u>44,919,601</u>
Contributions	
Employer	10,389,386
Participants	<u>23,357,094</u>
Total contributions	<u>33,746,480</u>
Deductions from net assets attributed to	
Benefits paid to participants	(45,707,507)
Administrative expenses	<u>(76,925)</u>
Total deductions	<u>(45,784,432)</u>
Transfers	
Distribution of plan assets from divestiture of Spectra-Physics	(20,715,716)
Merger with CRS Robotics 401(k) plan	<u>22,467</u>
Total transfers	<u>(20,693,249)</u>
Net increase in net assets available for benefits	12,188,400
Net assets available for benefits	
Beginning of year	<u>435,191,300</u>
End of year	<u>\$447,379,700</u>

See accompanying notes to financial statements.

Thermo Electron Corporation Choice Plan
Notes to Financial Statements
December 31, 2004 and 2003

1. Plan Description

The following description of the Thermo Electron Corporation Choice Plan (the Plan) provides only general information. Participants should refer to the Plan agreement for a more complete description of the Plan's provisions.

General

The Plan is a defined contribution plan. The Plan covers eligible full-time and part-time employees of Thermo Electron Corporation and subsidiaries (the Company) who have completed two months of service. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

In 2002, the Company purchased CRS Robotics Corporation. On May 17, 2004, the CRS Robotics 401(k) Plan was merged into the Plan. The balance of \$22,467 for the net assets available for benefits as of May 17, 2004 was transferred into the Plan.

In July 2004, the Company sold its Spectra-Physics, Inc. business. In connection with the sale, Plan participants who were Spectra-Physics employees became terminated employees and as such, were eligible to receive a distribution of their account balances. In 2004, the Plan distributed a direct rollover of such participants' account balances totaling \$20,715,716 to the defined contribution plan of Spectra-Physics' acquirer.

Contributions

Each year participants may contribute up to 50% of pre-tax annual compensation or \$13,000, as defined in the Plan. Participants may also contribute amounts representing distributions from other qualified defined benefit or defined contribution plans. Beginning on the first day of the calendar month following completion of one year of service, the Company makes non-discretionary matching contributions equal to 200% of the first 2% and 25% of the next 2% of base compensation that a participant contributes to the Plan. Participants direct the investment of their contributions and the Company match into various investment options offered by the Plan. The Plan currently offers the Company's common stock fund and sixteen investment funds as investment options for participants. Contributions are subject to certain limitations. Employee contributions and Company match are recorded on a monthly basis.

Participant Accounts

Each participant's account is credited with the participant's contributions and allocations of the Company's contribution and plan earnings, and charged with an allocation of administrative expenses, if any. Allocations are based on participant earnings or account balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

Vesting

Participants are immediately vested in their voluntary contributions plus actual earnings thereon. Vesting in the Company matching contributions plus actual earnings thereon is based on years of service. A participant is 100% vested after three years of credited service.

A participant is automatically 100% vested in all contributions upon the attainment of age 65, upon becoming permanently disabled, or upon death while still an active participant.

Participant Loans

Participants may only borrow from their employee portion of fund accounts a minimum of \$1,000 up to a maximum equal to \$50,000 or 50% of the vested account balance, whichever is less. The term of the loan is generally five years except when use of the proceeds is for the purchase of a primary residence, for which the term can be up to 30 years. The loans are secured by the balance in the participant's account and bear interest at

Thermo Electron Corporation Choice Plan
Notes to Financial Statements
December 31, 2004 and 2003

a rate commensurate with local prevailing rates as determined by the plan administrator. The interest rates on plan loans range from 5% to 10.75% at December 31, 2004, and 5% to 11% at December 31, 2003. Principal and interest are repaid through payroll deductions.

Benefit Payments and Plan Withdrawals

On termination of service due to death, disability or retirement, a participant (or beneficiary) may elect to receive either a lump-sum amount equal to the value of the participant's vested interest in his or her account or periodic installments. For termination of service due to other reasons, a participant may receive the value of the vested interest in his or her account as a lump-sum distribution. Withdrawals may be made under certain other circumstances in accordance with the Plan document.

Forfeitures

Upon a participant's break in service, as defined, the nonvested portion of the participant's account is forfeited and is used to reduce the Company's future funding requirements. If a participant who has terminated employment is rehired by the Company before the greater of a five-year break in service or the number of the participant's years of service prior to the participant's break in service, the participant shall be reinstated in such forfeited amount. In 2004, Company contributions were reduced by \$318,207 from forfeited nonvested accounts.

Transfer In/Out

In connection with certain reorganization activities at the Company, the assets of certain other plans sponsored by subsidiaries of the Company have been transferred into the Plan in connection with the merger of those plans. Additionally, the reorganization has involved a number of business dispositions. As a result, the plan assets in the accounts of the affected employees have sometimes been transferred to plans sponsored by the acquirers of these businesses disposed.

2. Summary of Significant Accounting Policies

Use of Estimates

The Plan's financial statements are prepared on the accrual basis of accounting. The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein. Actual results could differ from those estimates.

Investment Valuation

Investments are stated at fair value as determined by Fidelity Management Trust Company, a trust company that is the trustee and custodian of the Plan's investment assets. Common shares are valued based on quoted market prices. Registered investment companies and bank collective investment funds are valued based on net asset value. Participant loans are valued at cost plus accrued interest, which approximates fair value.

Purchases and sales of investments are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

In the statement of changes in net assets available for benefits, the Plan presents the net appreciation in the fair value of its investments, which consists of realized gains or losses and unrealized appreciation on investments. The cost of investments is determined using the average-cost basis for calculating realized gains or losses.

Payment of Benefits

Benefits are recorded when paid.

Thermo Electron Corporation Choice Plan
Notes to Financial Statements
December 31, 2004 and 2003

Risks and Uncertainties

The Plan invests in a combination of investment securities that are exposed to various risks, such as interest rate, market and credit. Due to the level of risk associated with certain investment securities and the level of uncertainty related to changes in the value of investment securities, it is at least reasonably possible that changes in risks in the near term would materially affect participants' account balances and the amounts reported in the statement of net assets available for benefits and the statement of changes in net assets available for benefits.

3. Tax Status

The Plan has received a favorable determination letter dated September 18, 2003, from the Internal Revenue Service. The Plan has been amended since receiving the determination letter; however, the Plan administrator, management and the Plan's tax counsel believe that the Plan has been designed and operated in compliance with the applicable requirements of the Internal Revenue Code.

4. Investments

The fair value of the Plan investments is determined by quoted market prices. Investments of the Plan's net assets are as follows:

	December 31,	
	2004	2003
Mutual Funds:		
Dodge and Cox Stock Fund *	\$ 83,953,751	\$ 68,531,423
Fidelity Balanced Fund*	53,653,572	53,083,335
Fidelity Blue Chip Growth Fund*	48,564,525	53,078,631
Spartan U.S. Equity Index Fund*	46,959,389	-
Fidelity Growth Company Fund*	33,206,584	31,880,444
Fidelity Diversified International Fund*	32,820,890	25,597,955
T. Rowe Price Small-Cap Stock Fund, Inc. *	22,373,284	17,910,263
Fidelity Magellan Fund	-	30,880,451
Freedom 2000 Fund	568,472	623,829
Freedom 2010 Fund	1,930,488	1,596,544
Freedom 2020 Fund	4,011,945	3,225,503
Freedom 2030 Fund	2,980,369	2,198,563
Freedom 2040 Fund	809,797	508,701
Freedom Income Fund	811,008	817,014
PIMCO Total Return Fund: Class ADM	18,431,355	19,075,530
Common Collective Trusts:		
Managed Income Portfolio II: Class II*	74,567,391	80,699,253
U.S. Equity Index Commingled Pool	-	23,610,546
Common Stock:		
Thermo Electron Corporation, 480,417 and 533,692 shares, respectively	14,503,789	13,449,038
Cash	<u>716,932</u>	<u>632,382</u>
Total investments	<u>\$440,863,541</u>	<u>\$427,399,405</u>

*Investments that represent five percent or more of the Plan's net assets.

Thermo Electron Corporation Choice Plan
Notes to Financial Statements
December 31, 2004 and 2003

4. Investments (continued)

During 2004, the Plan's investments (including investments bought, sold and held during the year) appreciated in value by \$33,116,814, as follows:

	<u>Year Ended</u> <u>December 31, 2004</u>
Mutual funds	\$30,021,043
Common collective trusts	558,639
Common stock	<u>2,537,132</u>
Net change in fair value	<u>\$33,116,814</u>

5. Related-party Transactions

Certain Plan investments are managed by the Fidelity Management Trust Company (Fidelity), which is a trustee as defined by the Plan. Therefore, transactions in these investments qualify as party-in-interest transactions. There were no fees paid by the Plan for investment management services for the period ended December 31, 2004. However, there were administrative expenses paid by the Plan to Fidelity in the amount of \$37,258. These transactions, as well as participant loans, qualify as party-in-interest transactions.

The Plan invests in common stock of the Company and transactions in this common stock are related-party transactions. In 2004, the Plan purchased shares of Company common stock on the open market having a value of \$152,093. In 2004 and 2003, the Plan sold shares of Company common stock on the open market having values of \$1,256,619 and \$793,012, respectively.

6. Plan Termination

Although it has not expressed an intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan, subject to the provisions of ERISA. In the event of Plan termination, participants would become 100% vested in their employer contributions.

7. Administrative Expenses

The Company pays the majority of administrative expenses associated with management of and professional services for the Plan. Administrative fees for hardship withdrawals and loan transactions are paid by the participants, and are included in the statement of changes in net assets available for benefits. During 2004, the Company received a settlement of approximately \$53,000 from the prior recordkeeper for the Plan. The proceeds from the settlement were utilized to offset administrative expenses.

Thermo Electron Corporation Choice Plan
Schedule H, Line 4i
Schedule of Assets (Held at End of Year)
December 31, 2004

Supplemental Schedule

Identity of Issue/Borrower, Lessor or Similar Party	Description of investments including maturity date, rate of interest, collateral, par, or maturity value	Cost	Current Value
Common Collective Trust			
Fidelity	Managed Income Portfolio II: Class II (1)	(2)	<u>\$ 74,567,391</u>
Mutual Funds			
Dodge and Cox	Dodge and Cox Stock Fund	(2)	83,953,751
Fidelity	Balanced Fund (1)	(2)	53,653,572
Fidelity	Blue Chip Growth Fund (1)	(2)	48,564,525
Fidelity	Growth Company Fund (1)	(2)	33,206,584
Fidelity	Diversified International Fund (1)	(2)	32,820,890
Fidelity	Freedom 2000 Fund (1)	(2)	568,472
Fidelity	Freedom 2010 Fund (1)	(2)	1,930,488
Fidelity	Freedom 2020 Fund (1)	(2)	4,011,945
Fidelity	Freedom 2030 Fund (1)	(2)	2,980,369
Fidelity	Freedom 2040 Fund (1)	(2)	809,797
Fidelity	Freedom Income Fund (1)	(2)	811,008
Fidelity	Spartan U.S. Equity Index Fund (1)	(2)	46,959,389
PIMCO	Total Return Fund: Class ADM	(2)	18,431,355
T. Rowe Price	Small-Cap Stock Fund, Inc.	(2)	<u>22,373,284</u>
	Total mutual funds		<u>351,075,429</u>
Thermo Electron Corporation	Common Stock Fund (1)	(2)	14,503,789
	Cash		<u>716,932</u>
	Total Thermo Electron Corporation Stock Fund		<u>15,220,721</u>
Participants	Participant loans (for a term not exceeding 30 years at interest rates ranging from 5% to 10.75%) (1)	(2)	<u>4,753,201</u>
	Total		<u>\$445,616,742</u>

(1) All investments are a party in interest to the Plan.

(2) Cost information is not required for participant directed investments and, therefore, is not included.

**Thermo Electron Corporation Choice Plan
Exhibit Index
December 31, 2004 and 2003**

Exhibit Number	Description of Exhibit
23.1	Consent of PricewaterhouseCoopers LLP.