THORATEC CORP
Form S-3
August 07, 2002

As filed with the Securities and Exchange Commission on August 7, 2002

Registration No. 333-_____

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SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

THORATEC CORPORATION
(Exact Name of Registrant as specified in its Charter)

CALIFORNIA	94-2340464
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

6035 STONERIDGE DRIVE, PLEASANTON, CALIFORNIA 94588 (925) 847-8600
(Address, including zip code, and telephone number, including area code, of Thoratec Corporation's principal executive offices)

D. KEITH GROSSMAN
6035 STONERIDGE DRIVE, PLEASANTON, CALIFORNIA 94588 (925) 847-8600
(Name, address, including zip code, and telephone number, including area code, of agent for service)

COPIES TO:

KYLE GUSE
HELLER EHRMAN WHITE & MCAULIFFE LLP
275 MIDDLEFIELD ROAD,
MENLO PARK, CALIFORNIA 94025-3506
TELEPHONE: (650) 324-6715
FACSIMILE: (650) 324-0638

Approximate date of commencement of proposed sale to the public:
AS SOON AS PRACTICABLE FOLLOWING THE EFFECTIVENESS OF THIS REGISTRATION STATEMENT.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. [ ]

If any of the Securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. [X]

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering: [ ]

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: [ ]

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box: [ ]

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CALCULATION OF REGISTRATION FEE

TITLE OF SECURITIES TO BE REGISTERED	AMOUNT TO BE REGISTERED	PROPOSED MAXIMUM OFFERING PRICE PER SHARE(1)	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(1)	AMOUNT OF REGISTRATION FEE
Common Stock, no par value(2)	7,609,719	$6.88	$52,354,867	$4,817

(1) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, as amended, based on the average of the high and low prices of the common stock on the Nasdaq National Market on August 2, 2002, as reported on the Nasdaq National Market.

(2) In accordance with Rule 416 under the Securities Act of 1933, Common Stock offered hereby shall also be deemed to cover additional securities to be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.

WE HEREBY AMEND THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL WE SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

THE INFORMATION IN THIS PRELIMINARY PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. WE MAY NOT SELL THESE SECURITIES UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PRELIMINARY PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES, AND WE ARE NOT SOLICITING OFFERS TO BUY THESE SECURITIES, IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

SUBJECT TO COMPLETION, DATED AUGUST __, 2002

PROSPECTUS

7,609,719 SHARES

THORATEC CORPORATION

COMMON STOCK

This prospectus may only be used in connection with the resale, from time to time, of up to 7,609,719 shares of common stock, no par value, of Thoratec Corporation by Thermo Electron Corporation.

All of the shares covered by this prospectus were acquired from us by Thermo Electron Corporation pursuant to an Agreement and Plan of Merger dated as of October 3, 2000. We will not receive any of the proceeds from the sale of shares being sold by Thermo Electron.

Our common stock is listed on the Nasdaq National Market under the symbol "THOR." On August 6, 2002, the last reported sale price of the common stock on the Nasdaq National Market was $6.70 per share.

INVESTING IN THE SHARES INVOLVES RISKS. "RISK FACTORS" BEGIN ON PAGE 4.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY OTHER STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS ACCURATE OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus. Thermo Electron Corporation is offering to sell, and is seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of the shares.

In this prospectus, "Thoratec," "we," "us" and "our" refer to Thoratec Corporation.

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FORWARD LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference in this prospectus, includes forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events. Our actual results could differ materially from those discussed in, or implied by, these forward-looking statements. Forward-looking statements are identified by words such as "believe," "anticipate," "expect," "intend," "plan," "will," "may" and other similar expressions. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances are forward-looking statements. Forward-looking statements include, but are not necessarily limited to, those relating to:

- our ability to obtain and maintain regulatory approvals of our products in the United States and internationally;
- results and timing of our clinical trials;
- the other competing therapies that may, in the future, be available to heart failure patients;
- our plans to develop and market new products;
- our ability to improve our financial performance; and
- effects of the merger and integration with Thermo Cardiosystems, Inc., which we refer to as Thermo Cardiosystems or TCA.

Factors that could cause actual results or conditions to differ from those anticipated by these and other forward-looking statements include those more fully described in the "Risk Factors" section and elsewhere in this prospectus and in other documents we file with the Securities and Exchange Commission. We are not obligated to update or revise these forward-looking statements to reflect new events or circumstances.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different information. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

Thoratec, the Thoratec logo, Thoralon, TLC-II, Vectra, HeartTouch, HeartMate and HeartPak are registered trademarks, and Aria is a trademark, of Thoratec Corporation.

HEMOCHRON, ProTime, Surgicutt, Tenderlett and Tenderfoot are registered trademarks of International Technidyne Corporation, which we refer to as ITC, our wholly-owned subsidiary.

THE OFFERING

Common stock offered by Thoratec..... We are not offering any of our shares

Common stock offered by the selling shareholder.....	Up to 7,609,719 shares
Use of proceeds.....	We will not receive any proceeds from the shares by the selling shareholder
Nasdaq National Market symbol.....	"THOR"

BUSINESS SUMMARY

OUR BUSINESS

We are a leading manufacturer of circulatory support products for use by patients with congestive heart failure, or CHF. According to the American Heart Association, 4.7 million patients in the United States suffer from CHF and an additional 550,000 patients are diagnosed with this disease annually. We were the first company to receive FDA approval to commercially market a ventricular assist device, or VAD, to treat patients with late-stage heart failure, which comprises approximately 5% of the CHF patient population. There is currently only one FDA-approved indication for ventricular assist devices for patients suffering from CHF -- as a bridge to heart transplant. This indication represents a worldwide market of up to 8,000 patients annually.

We develop and market products that are used by physicians and hospitals for cardiac assist, vascular and diagnostic applications. Our three types of products are:

- Circulatory support products. Our circulatory support products include ventricular assist devices for the short-term and long-term treatment of congestive heart failure. Our products address more indications than the products of any other cardiac-assist device company.

- Vascular graft products. We have developed small diameter grafts to address the vascular access and coronary bypass surgery markets. These grafts use our proprietary materials that are designed to improve performance. Our grafts are sold in the United States and internationally for use in hemodialysis patients and are currently in clinical trials for coronary artery bypass applications.

- Blood coagulation testing and skin incision devices. We have a leading market position for devices that monitor blood coagulation and perform blood screening analysis for patients undergoing various surgical procedures. We also offer a family of single-use skin incision devices used to create a blood sample.

OUR MARKETS

The primary markets for our VAD products are those patients suffering from heart failure, and in particular, from CHF. CHF is a chronic disease that occurs when degeneration of the heart muscle reduces the pumping power of the heart, causing the heart to become too weak to pump blood at a level sufficient to meet the body's demands. CHF can be caused by artery or valve diseases or a general weakening of the heart muscle itself. In addition, other conditions, such as

high blood pressure or diabetes, can also lead to CHF. We believe that the number of patients suffering from CHF who could benefit from some form of cardiac assist could be over 200,000 annually.

We estimate that our VADs have treated approximately 5,000 patients. Our devices are used primarily for patients awaiting a heart transplant or recovering from open heart surgery. However, we are pursuing approval to use our VADs in other indications, including as an alternative to maximum drug therapy for CHF patients who are not eligible for a heart transplant and for therapeutic recovery to partially reverse the complications of late-stage heart failure in certain patients.

OUR STRATEGY

We are a leading developer and manufacturer of medical devices for the CHF, cardiac surgery and vascular graft markets. Our key strategies to maintain and expand this leadership position are to:

- obtain approval for new indications for our products;

- increase penetration of existing markets;
- leverage benefits of our merger with TCA;
- offer a broad range of product solutions;
- focus on and partner with leading heart centers; and
- grow internationally.

THE MERGER WITH THERMO CARDIOSYSTEMS

On February 14, 2001, we completed our merger with Thermo Cardiosystems, a Massachusetts-based manufacturer of cardiac assist, blood coagulation testing and skin incision devices. As a result of the merger, we substantially increased the size of our company and became a leading provider of circulatory support products worldwide. We now sell VADs to virtually every leading heart transplant center worldwide and we market three out of the four VADs approved by the FDA as a bridge to heart transplant. At the time of the merger, we changed our name to Thoratec Corporation. As a consequence of the merger, the selling shareholder, Thermo Electron, owned approximately 14% of our outstanding stock on March 30, 2002.

THE REMATCH TRIAL

On November 12, 2001 the results of a clinical trial called REMATCH, or Randomized Evaluation of Mechanical Assistance for the Treatment of Congestive Heart Failure, were presented at the American Heart Association Scientific Sessions and were published in a website edition of The New England Journal of Medicine. The REMATCH trial, which cost approximately $25 million according to one of the trial sponsors, was a collaboration among the National Institutes of Health, or NIH, as lead sponsor, Columbia University and our company. We were a partial sponsor of the REMATCH trial, providing approximately $3.6 million of financial support and all necessary VAD's and related equipment.

The REMATCH trial results, as published in the New England Journal of Medicine, involved 129 late-stage CHF patients who, because of their ages or other diseases, were not eligible to receive one of the very limited supply of

donor organs for heart transplantation. The study was independently coordinated by Columbia University at 21 prestigious transplant centers in the United States. Patient enrollment for the initial study protocol began in 1998 and concluded in June 2001. The overall purpose of the study was to evaluate the efficacy, safety and cost effectiveness of our HeartMate ventricular assist device versus optimal medical management, which we call "maximum drug therapy." The REMATCH publication provided a detailed evaluation of survivability, device safety and impact on patient quality of life.

Results from the REMATCH trial showed a significant survival benefit and improved quality of life for patients using the HeartMate compared to maximum drug therapy. The study showed the overall probability of one-year survival for those on the HeartMate was 52% versus 25% for patients treated with maximum drug therapy. The one year survival rates for patients younger than 60 years old was 74% for those patients on the HeartMate and 33% for those treated with maximum drug therapy. The one year survival rates for patients 60 to 69 years old was 47% for those patients on the HeartMate and 15% for those treated with maximum drug therapy. Two-year survival rates are estimated to be 23% for patients on the HeartMate and 8% for those treated with maximum drug therapy. The median length of survival was approximately 408 days for those on the HeartMate and 150 days for those treated with maximum drug therapy. The frequency of serious adverse events for patients in the HeartMate group was 2.35 times

greater than for patients in the maximum drug therapy group, with a predominance of infection, bleeding and malfunction of the device. Some of these adverse events experienced by patients on the HeartMate included an ischemic stroke in approximately 10% of the patients, half of which were major.

The overall quality of life, as measured by the patient's emotional state, whether or not they were depressed, and their mobility, was significantly higher at one year for patients on the HeartMate than for those treated with maximum drug therapy. At the time the results of the REMATCH trial were published there were 27 HeartMate patients still alive, versus 7 receiving maximum drug therapy.

Based on a review of these data, the FDA approved an IDE Supplement allowing up to 30 additional non-randomized patients to be implanted with the HeartMate as an alternative to maximum drug therapy. This IDE Supplement also permits patients who were being treated with maximum drug therapy in the original study to be implanted with the HeartMate.

On October 16, 2001, we submitted a PMA Supplement for the HeartMate for destination therapy for patients suffering from late-stage CHF. On November 29, 2001 we received notification from the FDA that it expedited the review of our PMA Supplement. On March 4, 2002, the FDA Circulatory System Devices Advisory Panel, or the Panel, met to review our PMA Supplement. Based on results of the REMATCH trial, the Panel recommended that the FDA approve our PMA Supplement, with conditions, to provide long-term support for end-stage heart failure patients who are not eligible for heart transplantation. We and our REMATCH collaborators are working to address the conditions outlined by the Panel. We have already initiated discussions with the Centers for Medicare and Medicaid Services, formerly HCFA, regarding coverage and payment for use of the HeartMate in this treatment.

We believe that this new application for our HeartMate device represents a market opportunity of up to 100,000 additional patients annually in the United States alone, which would represent a significant increase over our existing customer base. For these patients, maximum drug therapy is currently the only treatment available and, even with drug therapy, the 12-month mortality rate for these patients is 75%. We believe that the HeartMate will provide a significant

survival benefit for this patient population.

RECENT DEVELOPMENTS

As of the beginning of fiscal year 2002, we adopted Statement of Financial Accounting Standard No. 142, "Goodwill and Other Intangible Assets" ("SFAS No. 142"), which addresses the financial accounting and reporting standards for the acquisition of intangible assets outside of a business combination and for goodwill and other intangible assets subsequent to their acquisition. This accounting standard requires that goodwill be separately disclosed from other intangible assets in the statement of financial position, and no longer be amortized but tested for impairment on a periodic basis. The provisions of this accounting standard also require the completion of a transitional impairment test within six months of adoption, with any impairments identified treated as a cumulative effect of a change in accounting principle. We have completed our transitional goodwill impairment test as of December 30, 2001 and determined that no adjustment to the carrying value of the goodwill and purchased intangible assets was needed.

In accordance with SFAS No. 142, we discounted the amortization of goodwill effective as of the beginning of fiscal year 2002. In addition, we reassessed the useful lives of our identifiable intangible assets and determined that the lives were appropriate.

The following table presents the impact of adopting SFAS No. 142 on net loss and net loss per share had the standard been in effect for the full year ended December 29, 2001.

	Year Ended December 29, 2001
Net loss as reported	$(87,866)
Adjustments:	
Amortization of goodwill, net of tax	4,196
Adjusted net loss	$(83,670)
As reported, basic and diluted loss per share	$ (1.68)
Impact of amortization of goodwill, net of tax	0.08
Adjusted basic and diluted net loss per share	$ (1.60)

No reconciliations have been shown for the years ended January 1, 2000 and December 30, 2000, as we had no goodwill recorded in our consolidated financial statements.

We are a California corporation. Our principal offices are located at 6035 Stoneridge Drive, Pleasanton, California 94588. Our telephone number is (925) 847-8600, and our fax number is (925) 847-8574.

RISK FACTORS

An investment in our common stock involves a high degree of risk. You should consider each of the risks and uncertainties described in this section and all of the other information in this prospectus before deciding to invest in our

common stock. Our business, financial condition and results of operations could be severely harmed by any of the following risks. The trading price of our common stock could decline if any of these risks and uncertainties develop into actual events. You may lose all or part of the money you paid to buy our common stock.

WE HAVE A HISTORY OF NET LOSSES, AND WE MAY NOT ACHIEVE OR MAINTAIN PROFITABILITY.

We were founded in 1976 and have a history of incurring losses from operations. As of March 30, 2002, our accumulated deficit was approximately $33.5 million. We anticipate that our expenses will increase as a result of increased preclinical and clinical testing, research and development and selling, general and administrative expenses. We could also incur significant additional costs in connection with the merger and integration of the two companies and in the development and marketing of new products and indicated uses for our existing products. Such costs could prevent us from achieving or maintaining profitability in future periods.

WE COULD FACE SIGNIFICANT CHALLENGES IN INTEGRATING TCA AND, AS A RESULT, MAY NOT REALIZE THE EXPECTED BENEFITS OF THE MERGER.

Thoratec and TCA have different technologies, products and business operations that have operated independently. The ongoing combination of these businesses has been complex and costly. If we fail to integrate the employees and products of both companies, or if we fail to complete the relocation of our Woburn manufacturing operations to Pleasanton, the operating results of the combined company could be adversely affected and we may not achieve the benefits or operating efficiencies that we hoped to obtain from the merger.

PHYSICIANS MAY NOT ACCEPT OR CONTINUE TO ACCEPT OUR PRODUCTS AND PRODUCTS UNDER DEVELOPMENT.

The success of our current and future products will require acceptance or continued acceptance by cardiovascular and vascular surgeons and other medical professionals. Such acceptance will depend on clinical results and the conclusion by these professionals that our products are safe, cost-effective and acceptable methods of treatment. Even if the safety and efficacy of our future products are established, physicians may elect not to use them for a number of reasons. These reasons could include the high cost of our VAD systems or unfavorable reimbursement from health care payors. Also, economic, psychological, ethical and other concerns may limit general acceptance of our ventricular assist, graft and other products.

WE HAVE EXPERIENCED RAPID GROWTH AND CHANGES IN OUR BUSINESS, AND OUR FAILURE TO MANAGE THIS AND ANY FUTURE GROWTH COULD HARM OUR BUSINESS.

As a result of the merger in February 2001, the number of our employees has increased significantly, from 183 on December 30, 2000 to 692 on March 30, 2002. We expect to continue to grow and we may suffer if we do not integrate and train our new employees quickly and effectively. Our revenues may not continue to grow at a rate sufficient to support the costs associated with an increasing number of employees. Any future periods of rapid growth may place significant strains on our managerial, financial and other resources. The rate of any future expansion, in combination with our complex technologies and products, may demand an unusually high level of managerial effectiveness in anticipating, planning, coordinating and meeting our operational needs as well as the needs of our customers.

IF WE FAIL TO SUCCESSFULLY INTRODUCE NEW PRODUCTS, OUR FUTURE GROWTH MAY SUFFER.

As part of our growth strategy, we intend to develop and introduce a number of new products and product improvements. We also intend to develop new indications for our existing products. If we do not introduce these new products, product improvements and new indications on a timely basis, or if they are not well accepted by the market, our future growth may suffer.

AMORTIZATION OF OUR INTANGIBLE ASSETS, WHICH REPRESENTS A SIGNIFICANT PORTION OF OUR TOTAL ASSETS, WILL ADVERSELY IMPACT OUR NET INCOME AND WE MAY NEVER REALIZE THE FULL VALUE OF OUR INTANGIBLE ASSETS.

As of March 30, 2002, we had $289.8 million of net intangible assets, representing 60% of our total assets and 75% of our shareholders' equity. These intangible assets consist primarily of goodwill and other intangible assets arising from our merger and our trademarks and patented technology. Amortization expense relating to these intangible assets for 2001 was $15.7 million. Of this amount, $4.4 million represented amortization of goodwill, which is no longer amortized after we adopted Statement of Financial Accounting Standards No. 142 at the beginning of 2002. Ongoing amortization of purchased intangibles will reduce our future earnings or increase our future losses.

We may not receive the recorded value for our intangible assets if we sell or liquidate our business or assets. The material concentration of intangible assets increases the risk of a large charge to earnings in the event that the recoverability of these intangible assets is impaired, and in the event of such a charge to earnings, the market price of our common stock could be adversely affected.

WE RELY ON SPECIALIZED SUPPLIERS AND ALTERNATIVE SUPPLIERS MAY NOT BE AVAILABLE.

We depend on a number of custom-designed components and materials supplied by other companies including, in some cases, single source suppliers for components and materials used in our VAD systems. We do not have long-term written agreements with most of our vendors and receive components on a purchase order basis. For example, Arrow International Inc., with whom we have no long-term written contract, is the only supplier of the mechanical valves for the Thoratec VADs and an alternative supplier may not be available. Sales of our Thoratec VAD system accounted for approximately 29% of our revenues for 2001 and 31% of our revenues for the first three months of 2002. If we need alternative sources for key raw materials or component parts for any reason, such alternative sources may not be available and our inventory may not be sufficient to fill orders before we find alternative suppliers or begin manufacturing such components or materials ourselves. Cessation or interruption of sales of circulatory support products would seriously harm our business, financial condition and results of operations.

Alternative suppliers, if available, may not agree to supply us. In addition, we may need to obtain FDA approval before using new suppliers or manufacturing our own components or materials. Existing suppliers could also be subject to an FDA enforcement action, which could also disrupt our supplies. If alternative suppliers are not available, we may not have the expertise or resources necessary to produce such materials or component parts internally. Any interruption in supply of materials or component parts could seriously harm our ability to manufacture products until we locate a new supply source.

IF WE FAIL TO COMPETE SUCCESSFULLY AGAINST OUR EXISTING OR POTENTIAL COMPETITORS, OUR REVENUES OR OPERATING RESULTS MAY BE HARMED.

Competition from medical device companies and medical device subsidiaries of health care and pharmaceutical companies is intense and is expected to increase.

Competitors for the VAD system include, for example, World Heart Corporation and ABIOMED, Inc. Principal competitors in the vascular graft market include W.L. Gore, Inc., C.R. Bard and Boston Scientific Corporation. The principal

competitors in the coagulation monitoring equipment market are the Hemotec division of Medtronic, Inc. and Roche Holding AG. The primary competitors in the skin incision device market are Organon Teknika B.V.; Becton, Dickson and Company; and Owen-Mumford Ltd.

Many of our competitors have substantially greater financial, technical, distribution, marketing and manufacturing resources than we do. Accordingly, our competitors may be able to develop, manufacture and market products more efficiently and at a lower cost than we can. We expect that the key competitive factors will include the relative speeds with which we can:

- develop products;

- complete clinical testing;

- receive regulatory approvals; and

- manufacture and sell commercial quantities of products.

Additionally, our competitors may succeed in developing and marketing technologies and products that are more effective than ours. Any such products may render our technology and products obsolete or noncompetitive. In addition, new surgical procedures and medications could be developed that replace or reduce the importance of current procedures that use our products.

IF WE FAIL TO OBTAIN APPROVAL FROM THE FDA AND FROM FOREIGN REGULATORY AUTHORITIES, WE CANNOT MARKET AND SELL OUR PRODUCTS UNDER DEVELOPMENT IN THE UNITED STATES AND IN OTHER COUNTRIES.

Before we can market new products in the United States, we must obtain clearance from the FDA. This process is lengthy and uncertain. In the United States, one must obtain clearance from the FDA of a 510(k) premarket notification or approval of a more extensive submission known as a PMA application. If the FDA concludes that any of our products do not meet the requirements to obtain clearance under Section 510(k) of the Federal Food, Drug, and Cosmetic Act, then we would be required to file a PMA application. The process for a PMA application is lengthy, expensive and typically requires extensive preclinical and clinical trial data. Preclinical data may need to be obtained in accordance with FDA good laboratory practices.

We may not obtain clearance of a 510(k) notification or approval of a PMA application with respect to any of our products on a timely basis, if at all. If we fail to obtain timely clearance or approval for our products, we will not be able to market and sell our products, harming our ability to generate revenue. The FDA may also limit the claims that we can make about our products. We may also be required to obtain clearance of a 510(k) notification or PMA Supplement from the FDA before we can market products that have been cleared that we have now modified or for which we wish to use for new indications.

The FDA also requires us to adhere to current Good Manufacturing Practices, or cGMP, regulations, which include production design controls, testing, quality control, storage and documentation procedures. The FDA may at any time inspect our facilities to determine whether we have adequate compliance. Compliance with cGMP regulations for medical devices is difficult and costly. In addition, we

may not be found to be compliant as a result of future changes in, or interpretations of, regulations by the FDA or other regulatory agencies. If we do not achieve compliance, the FDA may withdraw marketing clearance, require product recall or take other enforcement action, which in each case would harm our business. Any change or modification in a device is required to be made in compliance with cGMP regulations, which

may cause interruptions or delays in the marketing and sale of our products. The FDA also requires device manufacturers to submit reports regarding deaths, serious injuries and certain malfunctions.

Sales of our products outside the United States are subject to foreign regulatory requirements that vary from country to country. The time required to obtain approvals from foreign countries may be longer or shorter than that required for FDA approval, and requirements for foreign licensing may differ from FDA requirements.

The federal, state and foreign laws and regulations regarding the manufacture and sale of our products are subject to future changes, as are administrative interpretations and policies of regulatory agencies. If we fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to enforcement actions. Enforcement actions could include product seizures, recalls, withdrawal of clearances or approvals, and civil and criminal penalties, which in each case would harm our business.

WE MAY ENCOUNTER PROBLEMS MANUFACTURING OUR PRODUCTS.

We may encounter difficulties manufacturing our products. We do not have experience in manufacturing our products in the commercial quantities that might be required if we receive FDA approval of several or all of the products and indications currently under development. If we have difficulties manufacturing our products, our business will be harmed.

SINCE WE DEPEND UPON DISTRIBUTORS, IF WE LOSE A DISTRIBUTOR OR A DISTRIBUTOR FAILS TO PERFORM, OUR OPERATIONS WILL BE HARMED.

With the exception of Canada and most countries in Europe, we sell our VAD and HeartMate systems in foreign markets through distributors. In addition, we sell our vascular access graft products through the IMPRA division of C.R. Bard Corporation, which we refer to as Impra, in the United States, Europe and selected countries in Scandinavia, the Middle East and Northern Africa and through Goodman Co. Ltd. in Japan. ITC had sales through a distributor, Allegiance Healthcare, of approximately $13.5 million for 2001 and $3.3 million in the first three months of 2002. Our agreement with Allegiance Healthcare expired in June 2002. We are currently negotiating a renewal of the agreement and are conducting business on the basis of purchase orders during the interim period.

To the extent we rely on distributors, our success will depend upon the efforts of others, over which we may have little control. If we lose a distributor or a distributor fails to perform, our revenues will be harmed.

SINCE WE DEPEND ON THIRD PARTY REIMBURSEMENT TO OUR CUSTOMERS, IF THIRD PARTY PAYORS FAIL TO PROVIDE APPROPRIATE LEVELS OF REIMBURSEMENT FOR OUR PRODUCTS, OUR OPERATIONS WILL BE HARMED.

Significant uncertainty exists as to the reimbursement status of newly-approved health care products such as ventricular assist devices and

vascular grafts. Government and other third party payors are increasingly attempting to contain health care costs. Payors are attempting to contain costs by, for example, limiting coverage and the level of reimbursement of new therapeutic products. Payors are also attempting to contain costs by refusing, in some cases, to provide any coverage of uses of approved products for disease indications other than those for which the FDA has granted marketing approval.

To date, a majority of private insurers that we have dealt with, and Medicare and Medicaid, have determined to reimburse some portion of the costs of our ventricular assist devices and our diagnostic and vascular graft products. We cannot, however, estimate what portion of such costs have been reimbursed and our products may not continue to be approved for reimbursement. In addition, changes in the health

care system may affect the reimbursability of future products. If we fail to obtain such reimbursement or if the reimbursement levels are partially or completely reduced, our revenues would be reduced.

OUR INABILITY TO PROTECT OUR PROPRIETARY TECHNOLOGIES OR AN INFRINGEMENT OF OTHERS' PATENTS COULD HARM OUR COMPETITIVE POSITION.

We rely on patents, trade secrets, copyrights, know-how, trademarks, license agreements and contractual provisions to establish our intellectual property rights and protect our products. These legal means, however, afford only limited protection and may not adequately protect our rights. In addition, we cannot assure you that any of our pending patent applications will issue. The Patent and Trademark Office, or the PTO, may deny or significantly narrow claims made under patent applications and the issued patents, if any, may not provide us with commercial protection. We could incur substantial costs in proceedings before the PTO or in any future litigation to enforce our patents in court. These proceedings could result in adverse decisions as to the validity and/or enforceability of our patents. In addition, the laws of some of the countries in which our products are or may be sold may not protect our products and intellectual property to the same extent as U.S. laws, if at all. We may be unable to protect our rights in trade secrets and unpatented proprietary technology in these countries.

Aside from the biomaterials patents, which are utilized in the Thoratec VAD blood pump and cannulae, and one patent covering aspects of our TLC-II, our VAD systems are not protected by any patents. We rely principally on trade secret protection and, to a lesser extent patents, to protect our rights to the HeartMate. We rely principally on patents to protect our coagulation testing equipment and skin incision devices.

We seek to protect our trade secrets and unpatented proprietary technology, in part, with confidentiality agreements with our employees and consultants. Although it is our policy to require that all employees and consultants sign such agreements, we cannot assure you that every person who gains access to such information has done so. Moreover, these agreements may be breached and we may not have an adequate remedy.

Our products may be found to infringe prior or future patents owned by others. We may need to acquire licenses under patents belonging to others for technology potentially useful or necessary, and such licenses may not be available to us. We could incur substantial costs in defending suits brought against us on such patents or in bringing suits to protect our patents or patents licensed by us against infringement.

We own or hold rights in some U.S. patents by virtue of the merger between Thoratec and Thermo Cardiosystems. However, documents transferring ownership of some of these patents have not yet been submitted to the PTO and, while documents have been submitted to the PTO for others, those documents have not yet been recorded by the PTO. Until documents transferring rights to us as a result of the merger are recorded, our rights in the respective patents could be subject to rights of others who purchased those rights from Thoratec or Thermo Cardiosystems without knowledge of the merger.

In addition, we have received correspondence from another company alleging that our HeartMate infringes certain patent rights of that company. We cannot assure you that we will be successful if the matter is litigated.

PRODUCT LIABILITY CLAIMS COULD DAMAGE OUR REPUTATION AND HURT OUR FINANCIAL RESULTS.

Our business exposes us to an inherent risk of potential product liability claims related to the manufacturing, marketing and sale of human medical devices. We maintain only a limited amount of product liability insurance. Our insurance policies generally must be renewed on an annual basis. We may not be able to maintain or increase such insurance on acceptable terms or at reasonable costs, and such

insurance may not provide us with adequate coverage against potential liabilities. A successful claim brought against us in excess of, or outside of, our insurance coverage could seriously harm our financial condition and results of operations. Claims against us, regardless of their merit or potential outcome, may also reduce our ability to obtain physician endorsement of our products or expand our business.

IF WE MAKE ACQUISITIONS OR DIVESTITURES, WE COULD ENCOUNTER DIFFICULTIES THAT HARM OUR BUSINESS.

We may acquire companies, products or technologies that we believe to be complementary to our business. If we do so, we may have difficulty integrating the acquired personnel, operations, products or technologies. Acquisitions may dilute our earnings per share, disrupt our ongoing business, distract our management and employees and increase our expenses, which could harm our business. We may also sell businesses or assets as part of our strategy or if we receive offers from third parties. If we do so, we may sell an asset or business for less than its full value.

THE LONG AND VARIABLE SALES AND DEPLOYMENT CYCLES FOR OUR VAD SYSTEMS MAY CAUSE OUR REVENUE AND OPERATING RESULTS TO VARY SIGNIFICANTLY, WHICH INCREASES THE RISK OF AN OPERATING LOSS FOR ANY GIVEN FISCAL QUARTER.

Our VAD systems have lengthy sales cycles and we may incur substantial sales and marketing expenses and expend significant effort without making a sale. Even after making the decision to purchase our VAD systems, our customers often deploy our products slowly. For example, the length of time between initial contact with cardiac surgeons and the purchase of our VAD systems is generally between nine and eighteen months. As a result, it is difficult for us to predict the quarter in which our customers may purchase our VAD systems and our revenue and operating results may vary significantly from quarter to quarter, which increases the risk of an operating loss for us for any given quarter.

OUR NON-U.S. SALES PRESENT SPECIAL RISKS.

Sales originating outside the United States and U.S. export sales accounted for approximately 20% of our total revenues in 2001 and 16% of our total revenues for the first three months of 2002. We anticipate that sales outside the United States and U.S. export sales will continue to account for a significant percentage of our revenues and we intend to continue to expand our presence in international markets. Non-U.S. sales are subject to a number of special risks. For example:

- We generally sell many of our products at a lower price outside the United States;
- agreements may be difficult to enforce;
- receivables may be difficult to collect through a foreign country's legal system;
- foreign customers may have longer payment cycles;
- foreign countries may impose additional withholding taxes or otherwise tax our foreign income, impose tariffs or adopt other restrictions on foreign trade;
- U.S. export licenses may be difficult to obtain;
- intellectual property may be more difficult to enforce in foreign countries; and
- fluctuations in exchange rates may affect product demand and adversely affect the profitability, in U.S. dollars, of products sold in foreign markets where payments are made in local currencies.

Any of these events could harm our operations.

ANY CLAIMS RELATING TO IMPROPER HANDLING, STORAGE OR DISPOSAL OF HAZARDOUS CHEMICALS AND BIOMATERIALS COULD BE TIME CONSUMING AND COSTLY.

Producing our products requires the use of hazardous materials, including chemicals and biomaterials. We cannot eliminate the risk of accidental contamination or discharge and any resultant injury from these materials.

We could be subject to civil damages in the event of an improper or unauthorized release of, or exposure of individuals to, hazardous materials. In addition, claimants may sue us for injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Compliance with environmental laws and regulations may be expensive, and current or future environmental regulations may impair our research, development or production efforts.

OUR STOCK PRICE HAS BEEN VOLATILE, IS LIKELY TO CONTINUE TO BE VOLATILE, AND COULD DECLINE SUBSTANTIALLY.

The price of our common stock has been, and is likely to continue to be, highly volatile. The price of our common stock could fluctuate significantly for the following reasons:

- future announcements concerning us or our competitors;
- timing and reaction to the publication of clinical trial results;

- quarterly variations in operating results;
- charges, amortization and other financial effects relating to our merger;
- introduction of new products or changes in product pricing policies by us or our competitors;
- acquisition or loss of significant customers, distributors or suppliers;
- business acquisitions or divestitures;
- changes in earnings estimates by analysts;
- changes in third party reimbursement practices;
- regulatory developments and disclosure regarding completed ongoing or future clinical trials; or
- fluctuations in the economy or general market conditions.

In addition, stock markets in general, and the market for shares of health care stocks in particular, have experienced extreme price and volume fluctuations in recent years which have frequently been unrelated to the operating performance of the affected companies. These broad market fluctuations may adversely affect the market price of our common stock. The market price of our common stock could decline below its current price and the market price of our stock may fluctuate significantly in the future. These fluctuations may be unrelated to our performance.

In the past, shareholders have often instituted securities class action litigation after periods of volatility in the market price of a company's securities. If a shareholder files a securities class action suit against us, we would incur substantial legal fees and our management's attention and resources would be diverted from operating our business in order to respond to the litigation.

FUTURE ISSUANCES AND SALES OF OUR STOCK COULD DILUTE SHAREHOLDER OWNERSHIP AND CAUSE OUR STOCK PRICE TO DECLINE.

Future sales of substantial amounts of our stock in the public market, or the perception that such sales could occur, could adversely affect the market price of our stock. Sale of our shares and the potential for such sales, including for example the shares covered by this prospectus, could cause our stock price to decline.

THE OCCURRENCE OF A CATASTROPHIC DISASTER OR OTHER SIMILAR EVENTS COULD CAUSE DAMAGE TO OUR FACILITIES AND EQUIPMENT, WHICH WOULD REQUIRE US TO CEASE OR CURTAIL OPERATIONS.

We are vulnerable to damage from various types of disasters, including earthquake, fire, flood, power loss, communications failures and similar events. For example, in October 1989, a major earthquake that caused significant property damage and a number of fatalities struck near the area in which our Pleasanton facility is located. If any disaster were to occur, we may not be able to operate our business at our facilities, which could seriously harm our business and operations. The insurance we maintain may not be adequate to cover

our losses resulting from disasters or other business interruptions.

MANAGEMENT MAY INVEST OR SPEND THE PROCEEDS OF OUR RECENT OFFERING IN WAYS YOU MAY NOT AGREE WITH AND IN WAYS THAT MAY NOT YIELD A RETURN.

Although we will not receive any proceeds from the sale of the shares covered by this prospectus, our management will have broad discretion as to how the net proceeds of our previous offering will be used. Investors will be relying on the judgment of management regarding the application of the proceeds of the offering. The results and effectiveness of the application of the proceeds are uncertain.

FLUCTUATIONS IN FOREIGN CURRENCY EXCHANGE RATES COULD RESULT IN DECLINES IN OUR REPORTED SALES AND EARNINGS.

Since our international sales are denominated primarily in local currencies and not in U.S. dollars, our reported sales and earnings are subject to fluctuations in foreign exchange rates. At present, we do not engage in hedging transactions to protect against uncertainty in future exchange rates between particular foreign currencies and the U.S. dollar.

THE COMPETITION FOR QUALIFIED PERSONNEL IS PARTICULARLY INTENSE IN OUR INDUSTRY. IF WE ARE UNABLE TO RETAIN OR HIRE KEY PERSONNEL, WE MAY NOT BE ABLE TO SUSTAIN OR GROW OUR BUSINESS.

Our ability to operate successfully and manage our potential future growth depends significantly upon retaining key research, technical, sales, marketing, managerial and financial personnel, and attracting and retaining additional highly qualified personnel in these areas. We face intense competition for such personnel, and we may not be able to attract and retain these individuals. We compete with numerous companies, as well as universities and nonprofit research organizations throughout all our locations. The loss of key personnel for any reason or our inability to hire and retain additional qualified personnel in the future could prevent us from sustaining or growing our business. Our success will depend in large part on the continued services of our research, managerial and manufacturing personnel. We cannot assure you that we will continue to be able to attract and retain sufficient qualified personnel.

USE OF PROCEEDS

We will not receive any proceeds from the sale of up to 7,609,719 shares by Thermo Electron.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock and do not plan to pay any cash dividends in the foreseeable future. Our current policy is to retain all of our earnings to finance future growth.

SELLING SHAREHOLDER

Other than its ownership of our securities pursuant to the following agreements, Thermo Electron has not had any material relationship with us within the past three years.

MERGER AGREEMENT

On October 3, 2000, we entered into an Agreement and Plan of Merger by and among Thoratec, Lightning Acquisition Corp., our wholly owned subsidiary, TCA and Thermo Electron. Pursuant to this agreement, each share of TCA common stock outstanding immediately prior to the merger was converted into the right to receive 0.835 of a share of our common stock. In the merger, we issued 32,226,074 shares of our common stock, of which 19,312,959 shares were issued to Thermo Electron.

REGISTRATION RIGHTS AGREEMENT

The shares of our common stock issued in the merger to Thermo Electron are subject to certain limitations on resale pursuant to Rules 144 and 145 as promulgated under the Securities Act of 1933, or the Securities Act, and are not freely transferable. Pursuant to a registration rights agreement, dated October 3, 2000, we have previously registered 11,703,240 of shares of common stock issued to Thermo Electron in the merger. Pursuant to the registration statement of which this prospectus forms a part, we are registering 7,609,719 shares of common stock. As of July 31, 2002, Thermo Electron owned 7,685,544 shares of our common stock.

In addition, we granted Thermo Electron piggy-back registration rights in the event that we file a registration statement under the Securities Act.

Under the registration rights agreement, we agreed to indemnify Thermo Electron against certain liabilities arising under the Securities Act. We are required to reimburse Thermo Electron for certain expenses they incur in investigating or defending against claims based upon untrue statements (or alleged untrue statements) or omissions (or alleged omissions) of material facts concerning us in this prospectus. In addition, we are required to indemnify Thermo Electron against certain claims based on violations (or alleged violations) by us of the Securities Act in connection with this registration.

SHAREHOLDER AGREEMENT

On October 3, 2000, we entered into a shareholder agreement with Thermo Electron and TCA pursuant to which Thermo Electron has the right to be represented on our Board of Directors and pursuant to which Thermo Electron agreed to certain restrictions in respect of our common stock issued pursuant to the merger agreement. For example, Thermo Electron agreed:

- not to directly or indirectly acquire voting securities of our company, other than those issued in the merger, excluding those securities which may be acquired by way of a dividend, stock split or recapitalization;

- not to sell, transfer, pledge or otherwise encumber the shares acquired in the merger except under a registration statement or an exemption from such registration;

- not to sell shares acquired in the merger prior to June 14, 2001;

- not to sell more than 25% of the shares acquired in the merger prior to February 14, 2002;

- not to sell more than 50% of the shares acquired in the merger prior to August 14, 2002;

- until the termination of the agreement, to irrevocably and unconditionally ensure that our shares which are beneficially held by Thermo Electron or its affiliates will be counted as present, in person or by proxy, at any meeting of our company for the purposes of establishing and maintaining a quorum; and

- that neither it nor any of its affiliates will deposit our shares beneficially held by them in a voting trust or subject such shares to any voting agreements or arrangements except in a limited circumstance.

The shareholder agreement will terminate when Thermo Electron beneficially owns less than 5% of our voting securities.

CONVERTIBLE DEBENTURES

TCA had 4 3/4% subordinated convertible debentures, due 2004, outstanding prior to the merger with Thoratec, which were guaranteed by Thermo Electron. In connection with the merger, we obtained a letter of credit to guarantee Thermo Electron's obligations on the debentures. We also entered into a collateral and security agreement with the bank that issued the letter of credit for the pledge of cash and short-term instruments of $45.0 million to support the letter of credit. After the merger, the debentures became convertible into shares of Thoratec common stock, at a conversion price of $37.62. In March 2002 we redeemed all outstanding convertible subordinated debentures.

OTHER AGREEMENTS

During the past three years, Thermo Electron and its subsidiaries have had several agreements with TCA, including the following:

- a fiscal agency agreement dated May 14, 1997 related to the convertible debentures;

- agreements dated December 18, 1997 and June 1, 1999 related to cash management and intercompany loans;

- subleases dated August 19, 1998 and April 1, 1997, as amended, related to the lease of property used in TCA's operation; and

- agreements for the supply of components used in the HeartMate

HOLDINGS OF THE SELLING SHAREHOLDER

The following table sets forth information regarding beneficial ownership of our common stock by Thermo Electron as of July 31, 2002 and information regarding common stock to be sold by Thermo Electron. Because Thermo Electron may sell some or all of the shares of common stock offered in this prospectus, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares of common stock offered by this prospectus, we cannot provide an estimate of the actual amount of shares of common stock that Thermo Electron will hold after completion of a distribution. See "Plan of Distribution."

	COMMON STOCK BENEFICIALLY OWNED	COMMON STOCK BENEFICIALLY OWNED

	PRIOR TO OFFERING		COMMON STOCK	AFTER OFFERING(2)	
	NUMBER	PERCENT(1)	TO BE SOLD	NUMBER	PERCENT(1)
Thermo Electron Corporation 81 Wyman Street Waltham, MA 02454	7,685,544(3)	14%	7,609,719	0	--

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(1) Applicable percentage of ownership is based on 56,542,048 shares of Common Stock outstanding as of July 31, 2002.

(2) Assumes that Thermo Electron will sell all of the shares of common stock offered in this prospectus and 75,825 shares of common stock registered pursuant to a registration statement (number 333-61136), as amended, filed with the SEC on May 17, 2001.

(3) Includes 75,825 shares of common stock registered pursuant to a registration statement (number 333-61136), as amended, filed with the SEC on May 17, 2001.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 100,000,000 shares of common stock, no par value, and 2,500,000 shares of preferred stock, no par value.

COMMON STOCK

Holders of common stock are entitled to one vote per share on all matters to be voted upon by our shareholders. Subject to the preferences that may be applicable to any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared by the Board of Directors out of funds legally available therefor. In the event of our liquidation, dissolution or winding up, the holders of common stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to the prior liquidation rights of any outstanding shares of preferred stock. The holders of common stock are, and the shares offered by us in this offering will be, when issued and paid for, fully paid and nonassessable. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate and issue in the future.

PREFERRED STOCK

The Board of Directors is authorized, without shareholder approval, to issue up to 2,500,000 shares of preferred stock in one or more series, to fix the rights, preferences, privileges and restrictions granted to, or imposed upon, any unissued shares of preferred stock and to fix the number of shares constituting any series and the designations of such series. The issuance of preferred stock could decrease the amount of earnings and assets available for distribution to the holders of common stock or could adversely affect the rights and powers, including voting rights, of the holders of the common stock. In certain circumstances, such issuance could have the effect of decreasing the market price of the common stock. At the closing of the offering, no shares of preferred stock will be outstanding and we currently have no plans to issue any shares of preferred stock.

On May 2, 2002, we adopted a shareholder rights plan. Under the rights plan, we distributed one purchase right for each share of common stock outstanding at the close of business on May 17, 2002. If a person or group acquires 15% or more of our common stock in a transaction not pre-approved by our Board of Directors, each right will entitle its holder, other than the acquirer, to buy our common stock at 50% of its market value for the right's then current exercise price (initially $70.00). In addition, if an unapproved party acquires more than 15% of our common stock, and our Company or our business is later acquired by the unapproved party or in a transaction in which all shareholders are not treated alike, shareholders with unexercised rights, other than the unapproved party, will be entitled to purchase common stock of the merger party or asset buyer with a value of twice the exercise price of the rights. Each right also becomes exercisable for one one-thousandth of a share of our Series RP preferred stock at the right's then current exercise price ten days after an unapproved third party makes, or announces an intention to make, a tender offer or exchange offer that, if completed, would result in the unapproved party acquiring 15% or more of our common stock. Our Board of Directors may redeem the rights for a nominal amount before an event that causes the rights to become exercisable. The rights will expire on May 2, 2012.

In connection with the rights plan, we have designated 100,000 no par shares of our preferred stock as Series RP preferred stock. These shares, if issued, will be entitled to receive quarterly dividends and a liquidation preference. There are no shares of Series RP preferred stock issued and outstanding and we do not anticipate issuing any shares of Series RP preferred stock except as may be required under the rights plan.

PROVISIONS OF ARTICLES OF INCORPORATION AFFECTING SHAREHOLDERS

The existence of the Series RP preferred stock and the existence of the authorized but unissued preferred stock could have the effect of making it more difficult for a third party to effect a change in the control of the Board of Directors. This may discourage another person or entity from making a tender offer for the common stock, including offers at a premium over the market price of the common stock, and might result in a delay in changes in control of management. In addition, these provisions could have the effect of making it more difficult for proposals favored by the shareholders to be presented for shareholder consideration.

We have also included in our Articles of Incorporation provisions to eliminate the personal liability of our directors for monetary damages resulting from breaches of their fiduciary duty to the extent permitted by the California Corporations Code and to indemnify our directors and officers to the fullest extent permitted by Section 317 of the California Corporations Code.

TRANSFER AGENT AND REGISTRAR

The transfer agent and registrar for our common stock is Computershare Trust Company, Inc.

PLAN OF DISTRIBUTION

The shares of our common stock being offered in this prospectus were originally issued to Thermo Electron in connection with the merger of Cardiosystems with our wholly-owned subsidiary. The shares were issued to Thermo Electron pursuant to a registration statement declared effective by the SEC. In accordance with the registration rights agreement, we have filed a registration

statement on Form S-3 with the SEC to register the securities for resale. The registration statement covers the resale of up to 7,609,719 shares of our common stock from time to time on the Nasdaq National Market or in privately negotiated transactions. In addition, the registration statement covers an indeterminate number of additional shares of our common stock as may from time to time become issuable as a result of any stock split, stock dividend, recapitalization, combination, merger, consolidation, distribution or other similar transactions with respect to such 7,609,719 shares. This prospectus forms a part of the registration statement.

Under the registration rights agreement, Thermo Electron is entitled to offer and sell shares of our common stock under this prospectus only at such times as the registration statement is effective (and we have not advised Thermo Electron to suspend trading). We have agreed to use reasonable commercial efforts to keep the registration statement effective until the earlier of the expiration of this registration or all shares of our common stock offered in this prospectus have been sold.

Subject to the requirements of the registration rights agreement, the shares of our common stock offered in this prospectus may be offered and sold from time to time by Thermo Electron. Such offers and sales may be made from time to time on a stock exchange, market or trading facility on which the securities are traded or in privately negotiated transactions. These sales may be at prices and on terms prevailing in the market, at prices related to the market price of our common stock or at negotiated prices. Thermo Electron may use any one or more of the following methods when selling the securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- a special offering, an exchange distribution or a secondary distribution in accordance with the rules of the relevant exchange;
- privately negotiated transactions;
- agreements with broker-dealers to sell a specified number of such shares at a stipulated price per share;
- purchases by one or more underwriters followed by a resale of such shares by the underwriter or underwriters;
- sales "at the market" to or through a market maker or into an existing trading market, on an exchange or otherwise, for such securities;
- by pledge to secure debts and other obligations;

- short sales;
- in hedge transactions and in settlement of other transactions;

- through the writing of options on the securities, whether or not the options are listed on an options exchange; or

- a combination of any such methods of sale; and any other method permitted by law.

Thermo Electron may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by Thermo Electron may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling shareholder (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. Thermo Electron does not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

Thermo Electron and any broker-dealers, underwriters or agents that are involved in selling the securities may be considered to be "underwriters" within the meaning of the Securities Act in connection with such sales. If so, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be considered to be underwriting commissions or discounts under the Securities Act.

In order to comply with the securities laws of some states, the securities must be offered or sold only through registered or licensed brokers or dealers. In addition, in some states, the securities may not be offered or sold unless they have been registered or qualified for sale in that particular state or unless an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale of shares may not simultaneously engage in market making activities with respect to our common stock for a period of two business days prior to the commencement of such distribution. In addition, the selling shareholder will be subject to applicable provisions of the Exchange Act, and the rules and regulations thereunder, including, without limitation, Regulation M, which provisions may limit the timing of purchases and sales of shares of our common stock by Thermo Electron.

Thermo Electron will pay all commissions, transfer taxes, and certain other expenses associated with the sale of securities by it. Under the terms of the Registration Rights Agreement, we paid the expenses of the preparation of this prospectus and will also bear the expense of maintaining the effectiveness of the registration statement of which this prospectus forms a part.

LEGAL MATTERS

Heller Ehrman White & McAuliffe LLP, Menlo Park, California will pass on the validity of the common stock offered by this prospectus for us.

EXPERTS

The consolidated financial statements of Thoratec Corporation incorporated in this prospectus, by reference from the annual report on Form 10-K of Thoratec for the year ended December 29, 2001, have been audited by Deloitte & Touche LLP, independent auditors, as stated in their report, which is incorporated herein by reference, and have been so incorporated in reliance upon the report of such firm given upon their authority as experts in

accounting and auditing.

After reasonable effort, we were unable to obtain the consent of Arthur Andersen LLP, independent auditors to Thoratec Corporation (formerly Thermo Cardiosystems, Inc., a Massachusetts corporation and 60% owned subsidiary of Thermo Electron Corporation), for the incorporation by reference of its report for the year ended December 30, 2000 dated February 5, 2001 included in our Annual Report on Form 10-K for the year ended December 29, 2001, as filed on March 15, 2002. We have dispensed with the requirement to file Arthur Andersen LLP's consent in reliance on Rule 437(a) promulgated under the Securities Act. Because Arthur Andersen LLP has not consented to the incorporation by reference of their report in this registration statement, you will not be able to recover against Arthur Andersen LLP under Section 11 of the Securities Act for any untrue statements of a material fact contained in the financial statements audited by Arthur Andersen LLP incorporated by reference herein or any omissions to state a material fact required to be stated therein.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's public reference room at 450 Fifth Street, NW, Washington, D.C., 20549, and at the SEC's public reference rooms in Chicago, Illinois and New York, New York. Please call the SEC at 1-800-SEC-0330 for further information concerning the public reference rooms. Our SEC filings are also available to the public on the SEC's Website at HTTP://WWW.SEC.GOV.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act of 1933 with respect to the common stock offered in connection with this prospectus. This prospectus does not contain all of the information set forth in the registration statement. We have omitted certain parts of the registration statement in accordance with the rules and regulations of the SEC. For further information with respect to us and the common stock, you should refer to the registration statement. Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, you should refer to the copy of such contract or document filed as an exhibit to or incorporated by reference in the registration statement. Each statement as to the contents of such contract or document is qualified in all respects by such reference. You may obtain copies of the registration statement from the SEC's principal office in Washington, D.C. upon payment of the fees prescribed by the SEC, or you may examine the registration statement without charge at the offices of the SEC described above.

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we will make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934.

(1) Annual Report on Form 10-K for the fiscal year ended December 29, 2001;

(2) Quarterly Report on Form 10-Q for the fiscal quarter ended March 30, 2002;

(3) The description of our Rights Agreement and Preferred Stock Purchase

Rights contained in our registration statement on Form 8-A, filed May 3, 2002, including any amendment or reports filed for the purpose of updating that description.

You may request a copy of these filings at no cost, by writing or telephoning at the following address:

Thoratec Corporation
Investor Relations
6035 Stoneridge Drive
Pleasanton, California 94588
(925) 847-8600

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

SEC Registration Fee	$ 4,817
NASD Filing Fee	0
Nasdaq National Market Listing Fee	0
Transfer Agent and Registrant Fees	5,000
Accounting Fees and Expenses	15,000
Legal Fees and Expenses	20,000
Printing and Engraving	5,000
Miscellaneous	5,000
TOTAL	$54,817

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Our articles of incorporation provides that, to the fullest extent permitted by California law, none of our directors shall be personally liable to us or our shareholders for monetary damages for breach of fiduciary duty as a director, notwithstanding any other provision of law. However, a director shall be liable to the extent required by law (i) for any breach of the director's duty of loyalty to us or our shareholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) in respect of certain unlawful dividend payments or stock redemptions or repurchases, or (iv) for any transaction from which the director derived an improper personal benefit.

We entered into indemnification agreements with each of our directors and anticipate that we will enter into similar agreements with any future director. Generally, these agreements attempt to provide the maximum protection permitted by California law with respect to indemnification. The indemnification agreements provide that we will pay certain amounts incurred by a director in connection with any civil or criminal action or proceeding, specifically including actions by us or in our name (derivative suits) where the individual's involvement is by reason of the fact that he is or was a director or officer. For directors, such amounts include, to the maximum extent permitted by law, attorney's fees, judgments, civil or criminal fines, settlement amounts and

other expenses customarily incurred in connection with legal proceedings. Under the indemnification agreements, a director will not receive indemnification if the director is found not to have acted in good faith and in a manner he reasonably believed to be in or not opposed to our best interests. We have also entered into similar agreements with certain of our officers and top management personnel who are not also directors. Generally, the indemnification agreements attempt to provide the maximum protection permitted by California law with respect to indemnification of directors and officers.

The effect of these provisions would be to permit such indemnification by us for liabilities arising under the Securities Act of 1933, as amended.

ITEM 16. EXHIBITS

(a). Exhibits and Index of Exhibits

EXHIBIT NUMBER	EXHIBIT
5.1	Opinion of Heller Ehrman White & McAuliffe LLP
23.1*	Independent Auditors' Consent
23.2	Consent of Heller Ehrman White & McAuliffe LLP (contained in exhibit 5.1).
24	Power of Attorney -- Reference is made to page II-5 hereof.

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* After reasonable effort, we were unable to obtain the consent of Arthur Andersen LLP, independent auditors to Thoratec Corporation (formerly Thermo Cardiosystems, Inc., a Massachusetts corporation and 60% owned subsidiary of Thermo Electron Corporation), for the incorporation by reference of its report for the year ended December 30, 2000 dated February 5, 2001 included in our Annual Report on Form 10-K for the year ended December 29, 2001, as filed on March 15, 2002. We have dispensed with the requirement to file Arthur Andersen LLP's consent in reliance on Rule 437(a) promulgated under the Securities Act. Because Arthur Andersen LLP has not consented to the incorporation by reference of their report in this registration statement, you will not be able to recover against Arthur Andersen LLP under Section 11 of the Securities Act for any untrue statements of a material fact contained in the financial statements audited by Arthur Andersen LLP incorporated by reference herein or any omissions to state a material fact required to be stated therein.

ITEM 17. UNDERTAKINGS

The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made,

a post-effective amendment to this registration statement;

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (i) and (ii) shall not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new Registration Statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under

the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Pleasanton, State of California, on August 7, 2002.

Thoratec Corporation

By: /s/ D. Keith Grossman

D. Keith Grossman
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS that each person whose signature appears below constitutes and appoints D. Keith Grossman and M. Wayne Boylston, and each of them, his true and lawful attorney-in-fact, with full power of substitution and resubstitution, to act for him and in his name, place and stead, in any and all capacities to sign any and all pre- or post-effective amendments to this registration statement, any subsequent registration statement for the same offering which may be filed under Rule 462(b) under the Securities Act (a "Rule 462(b) registration statement") and any and all pre- or post-effective amendments thereto, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing which they, or any of them, may deem necessary or advisable to be done in connection with this registration statement or any Rule 462(b) registration statement, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or any substitute or substitutes for any or all of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date

/s/ D. Keith Grossman D. Keith Grossman	Chief Executive Officer, President and Director	August 7, 2002
/s/ Howard E. Chase Howard E. Chase	Director	August 7, 2002

/s/ J. Daniel Cole J. Daniel Cole	Director	August 7, 2002
/s/ J. Donald Hill J. Donald Hill	Director and Chairman of the Board of Directors	August 7, 2002
/s/ William M. Hitchcock William M. Hitchcock	Director	August 7, 2002
/s/ George W. Holbrook, Jr. George W. Holbrook, Jr.	Director	August 7, 2002
/s/ Theo Melas-Kyriazi Theo Melas-Kyriazi	Director	August 7, 2002
/s/ Daniel M. Mulvena Daniel M. Mulvena	Director	August 7, 2002
/s/ M. Wayne Boylston M. Wayne Boylston	Senior Vice President, Chief Financial Officer and Secretary (Principal Financial and Accounting Officer)	August 7, 2002