THORATEC CORP
Form S-3
October 24, 2001

AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON OCTOBER 24, 2001
REGISTRATION NO. 333-

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 registrant's principal executive offices)

D. KEITH GROSSMAN
PRESIDENT AND CHIEF EXECUTIVE OFFICER
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	ALEJANDRO E. CAMACHO
HELLER EHRMAN WHITE & MCAULIFFE LLP	CLIFFORD CHANCE ROGERS & WELLS L
275 MIDDLEFIELD ROAD	200 PARK AVENUE
MENLO PARK, CA 94025	NEW YORK, NY 10166
TELEPHONE: (650) 324-6715	TELEPHONE: (212) 878-8000
FACSIMILE: (650) 324-0638	FACSIMILE: (212) 878-8375

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. [ ]

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: [ ]

CALCULATION OF REGISTRATION FEE

TITLE OF SECURITIES TO BE REGISTERED	AMOUNT TO BE REGISTERED(1)	PROPOSED MAXIMUM OFFERING PRICE PER SHARE(2)	PROPOSED MAXI AGGREGATE OFFERING PRICE
Common Stock, no par value(3).....	9,200,000	$20.65	$189,980,00

(1) Includes up to 1,200,000 shares of common stock which the underwriters have the option to purchase solely to cover over-allotments, if any. See "Underwriting".

(2) 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 October 22, 2001, as reported on the Nasdaq National Market.

(3) 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 THIS 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 OCTOBER 24, 2001

PROSPECTUS

8,000,000 SHARES

[LOGO]

COMMON STOCK

We are offering 2,055,000 shares of common stock, and the selling shareholders are offering 5,945,000 shares. We will not receive any of the proceeds from the sale of shares being sold by the selling shareholders.

Our common stock is quoted on the Nasdaq National Market under the symbol "THOR." On October 22, 2001, the last reported sale price of our common stock on the Nasdaq National Market was $20.25 per share.

INVESTING IN THE SHARES INVOLVES RISKS. "RISK FACTORS" BEGIN ON PAGE 6.

	PER SHARE	TOTAL
Public offering price	$	$
Underwriting discounts	$	$
Proceeds to Thoratec	$	$
Proceeds to the selling shareholders	$	$

We and the selling shareholders have granted the underwriters a 30-day option to purchase up to 1,200,000 additional shares of common stock to cover any over-allotments.

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.

Lehman Brothers expects to deliver the shares on or about , 2001.

LEHMAN BROTHERS
MERRILL LYNCH & CO.
JPMORGAN
BEAR, STEARNS & CO. INC.
ADAMS, HARKNESS & HILL, INC.
FIDELITY CAPITAL MARKETS

, 2001

TABLE OF CONTENTS

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, including the results of the REMATCH trial and publication of those results;
- 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. 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.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus. You should read the entire prospectus carefully, including the "Risk Factors" section and our consolidated financial statements and the related notes that are incorporated by reference into this prospectus. Unless otherwise indicated, the information in this prospectus assumes that the underwriters do not exercise their over-allotment option.

OUR COMPANY

OUR BUSINESS

We are the 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.

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 as many as 200,000 annually.

We estimate that our VADs have treated over 4,700 patients, or more than 3.5 times as many patients as our nearest competitor. 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 the 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 parent company of TCA, Thermo Electron Corporation, owned approximately 26% of our outstanding stock on September 29, 2001 and will own approximately 15% after this offering.

RECENT DEVELOPMENTS

We expect that on November 12, 2001 results of a clinical trial called REMATCH, or Randomized Evaluation of Mechanical Assistance for the Treatment of Congestive Heart Failure, will be presented at the American Heart Association Scientific Sessions. We also expect that soon thereafter, the results will be published in a peer-reviewed medical journal. The REMATCH trial was a collaboration among the National Institutes of Health, or NIH, as lead sponsor, Columbia University and our company. We are a partial sponsor of the REMATCH trial.

The REMATCH trial 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 20 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." We expect that the REMATCH publication will provide a detailed evaluation of survivability and impact on patient quality of life.

Preliminary results from the REMATCH trial show a significant survival benefit for patients using the HeartMate compared to maximum drug therapy. Based on a review of these data, the FDA approved an IDE Supplement allowing up to 30 additional 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 as an alternative to maximum drug therapy for patients suffering from late-stage CHF. If approved by the FDA, the HeartMate will become the first ventricular assist device approved for use as an alternative treatment to maximum drug therapy for patients suffering from late-stage CHF. We have already initiated discussions with the Centers for Medicare and Medicaid Services (formerly HCFA) regarding reimbursement coverage 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.

We were founded in 1976 and 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) 847-8625.

THE OFFERING

Common stock offered by our company.....	2,055,000 shares
Common stock offered by selling shareholders.....	5,945,000 shares
Common stock outstanding after the offering.....	57,397,262 shares

Use of proceeds.....	We intend to use the proceeds from this offering for: - the pursuit of additional regulatory approvals for our products; - research and development; - expansion of sales and marketing; - acquisitions of complementary technologies and businesses; - working capital and other general corporate purposes; and - potential retirement of our 4 3/4% convertible debentures due 2004 that were issued by TCA.
Nasdaq National Market symbol.....	"THOR"

The common stock outstanding after this offering is based on the number of shares outstanding at September 29, 2001, and excludes 5,817,961 shares of common stock reserved for issuance upon the exercise of outstanding stock options on that date at a weighted average exercise price of $9.97 per share and 1,457,682 shares of common stock reserved for issuance upon the conversion of outstanding debentures issued by TCA at a conversion price of $37.62 per share.

SUMMARY CONSOLIDATED FINANCIAL DATA

The summary consolidated financial data presented below for the three fiscal years ended December 30, 2000 is derived from audited financial statements incorporated by reference in this prospectus. The interim summary consolidated financial data for the nine-month periods ended September 2000 and 2001 have been prepared in accordance with accounting principles generally accepted in the United States without audit and, in our opinion, reflect all adjustments necessary (consisting only of normal recurring adjustments) to present fairly our financial position and results of operations for the periods shown. The data set forth below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus, the consolidated financial statements of Thoratec filed with the SEC in our Form 10-K on March 29, 2001, the consolidated financial statements of TCA filed with the SEC on Form 8-K/A on March 30, 2001, the interim consolidated financial statements of Thoratec filed with the SEC on Forms 10-Q on May 14, 2001 and August 13, 2001, the interim consolidated financial statements of TCA filed with the SEC on Form 10-Q on November 9, 2000, pro forma financial information on Form 8-K filed with the SEC on October 24, 2001, and our other filings made with the SEC. Certain reclassifications have been made to the financial statements previously filed with the SEC to conform to current practice.

The merger of Thoratec with TCA was completed on February 14, 2001. We issued new shares of our common stock to the shareholders of TCA in exchange for all the outstanding common stock of TCA at an exchange ratio of 0.835 shares of Thoratec stock for each share of TCA. The merger with TCA was accounted for as a reverse acquisition because former shareholders of TCA owned a majority of our outstanding stock subsequent to the merger. For accounting purposes, TCA is

deemed to have acquired Thoratec and therefore for fiscal years 1998, 1999 and 2000 all financial information presented herein represents the results of operations of TCA. The September 2001 consolidated financial information presented herein includes the financial results of TCA for the full nine-month period ended September 29, 2001 and our financial results for the post-merger period from February 14, 2001 through September 29, 2001. The pro forma columns of the statement of operations data for the fiscal year 2000 and the nine-month period ended September 29, 2001 reflect our operating results as if the merger with TCA had occurred at the beginning of fiscal year 2000. The pro forma statement of operations data is presented for informational purposes only and is not indicative of the operating results that would have occurred had the merger been consummated as of the above dates, nor are they necessarily indicative of future operating results. The weighted average number of common shares previously reported by TCA has been adjusted for all periods to reflect the exchange ratio of 0.835 to 1.

Our fiscal year ends on the closest Saturday to December 31. Accordingly, our fiscal year will periodically contain more or less than 365 days. For example, fiscal 1998 ended on January 1, 1999, fiscal 1999 ended on December 31, 1999 and fiscal 2000 ended on December 30, 2000. Our fiscal quarters are three-month periods that end on the Saturday closest to the end of the applicable calendar quarter. The first nine months of 2000 ended on September 30, 2000. The first nine months of 2001 ended on September 29, 2001.

	FISCAL YEAR			PRO FORMA FISCAL YEAR	NINE MONTHS EN SEPTEMBER	
	1998	1999	2000	2000	2000	2
				(UNAUDITED)	(UNAUDITED)	(UNA
				(IN THOUSANDS, EXCEPT PER SHARE DATA)		
STATEMENT OF OPERATIONS DATA:						
Product sales	$65,301	$78,611	$83,396	$113,825	$61,928	$ 7
Cost of product sales	27,057	33,326	34,830	45,798	25,858	3
Gross profit	38,244	45,285	48,566	68,027	36,070	4
Research and development	12,277	16,044	16,190	23,454	11,816	1
Selling, general and administrative	18,960	22,018	23,587	34,580	17,601	2
Amortization of goodwill and purchased intangible assets	--	--	--	17,884	--	1
In-process research and development	--	--	--	--	--	7
Merger, restructuring and other costs	--	--	1,831	6,000	1,094	
Total operating expenses	31,237	38,062	41,608	81,918	30,511	13
Other operating income	--	--	--	331	--	
Income (loss) from operations	7,007	7,223	6,958	(13,560)	5,559	(9
Interest and other income -- net	5,432	4,014	5,005	5,719	3,726	
Income (loss) before income						

taxes	12,439	11,237	11,963	(7,841)	9,285	(9
Income tax expense (benefit)	4,619	2,865	4,630	500	3,573	(
Net income (loss) before extraordinary item	$ 7,820	$ 8,372	$ 7,333	$ (8,341)	$ 5,712	$(8
Basic and diluted earnings (loss) per share before extraordinary item	$ 0.24	$ 0.26	$ 0.23	$ (0.15)	$ 0.18	$
Weighted average shares outstanding						
Basic	32,406	32,100	32,193	54,024	32,188	5
Diluted	32,552	32,132	32,209	54,024	32,208	5

The as adjusted column of the balance sheet data at September 29, 2001 reflects our sale of 2,055,000 shares of common stock under this prospectus at an assumed public offering price of $20.25 per share and the application of the net proceeds, after deducting the estimated fees of the underwriters and our share of estimated offering expenses.

	SEPTEMBER 29, 2001	
	ACTUAL	AS ADJUSTED
	(UNAUDITED) (IN THOUSANDS)	
CONSOLIDATED BALANCE SHEET DATA:		
Cash, cash equivalents and short term investments	$ 89,652	$129,189
Restricted investments	45,794	45,794
Total assets	518,771	558,308
Long-term debt	54,838	54,838
Total shareholders' equity	362,467	402,004

RISK FACTORS

This offering and an investment in our common stock involve 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 develops 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 September 29, 2001, our accumulated deficit was approximately $31.2 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 with TCA and 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, 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 equipment and training associated with their use 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 with TCA in February 2001, the number of our employees has increased significantly, from 183 on December 30, 2000 to 667 on September 29, 2001. 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

timely introduce these new products, product improvements and new indications, 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 September 29, 2001, we had $298.6 million of net intangible assets, representing 58% of our total assets and 82% of our shareholders' equity. These intangible assets consist primarily of goodwill and other intangible assets

arising from our merger with TCA and our trademarks and patented technology. Amortization expense relating to these intangible assets for the nine-month period ended September 2001, was $11.3 million. Of this amount, $3.1 million represented amortization of goodwill, which will no longer be amortized after we adopt Statement of Financial Accounting Standards No. 142 at the beginning of fiscal year 2002. These expenses 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. 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 ventricular assist 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 source of supply.

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. 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 approval; 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 premarket approval (PMA) application. If the FDA concludes that any of our products does 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 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 Thoratec 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 and through Goodman Co. Ltd. in Japan. Our wholly-owned subsidiary, International

Technidyne, had sales through a distributor, Allegiance Healthcare, of approximately $9.8 million for the first nine months of 2001.

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, some private insurers, Medicare and Medicaid have determined to reimburse the costs of our ventricular assist devices and our diagnostic and vascular graft products. These devices 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 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 U.S. 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. These proceedings could result in adverse decisions as to the priority of our inventions. 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 TLC-II patent, our Thoratec 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. These agreements may, however, 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.

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.

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

During 2000, sales originating outside the United States and U.S. export sales accounted for approximately 16% of our total revenues on a pro forma basis. 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 YOUR OWNERSHIP AND CAUSE OUR STOCK PRICE TO DECLINE.

We have outstanding debentures issued by TCA prior to our merger. These debentures are convertible into our common stock at $37.62 per share. If all of the debentures are converted, we would issue approximately 1,457,682 shares of common stock. Conversion of these debentures could dilute our existing shareholders.

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. For example, upon completion of this offering, Thermo Electron will own 8,735,544 shares of our common stock, which cannot be sold without our permission prior to August 14, 2002. Sale of these shares and any shares issued upon conversion of our debentures, and the potential for such sales, 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 THE OFFERING IN WAYS YOU MAY NOT AGREE WITH AND IN WAYS THAT MAY NOT YIELD A RETURN.

Our management will have broad discretion as to how the net proceeds of this offering will be used. Investors will be relying on the judgment of management regarding the application of the proceeds of this 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 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 AND IN NORTHERN CALIFORNIA. 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 in the highly competitive Northern California business area. 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 estimate net proceeds to our company from the sale of the 2,055,000 shares of common stock of approximately $39.5 million, assuming a public offering price of $20.25 per share and after deducting the estimated underwriting discounts and a portion of the offering expenses paid by us. We will not receive any proceeds from the sale of 5,945,000 shares by the selling shareholders. We intend to use the net proceeds for:

- the pursuit of additional regulatory approvals for our products;
- research and development;
- expansion of sales and marketing;
- acquisitions of complementary technologies and businesses;
- working capital and other general corporate purposes; and
- potential retirement of our 4 3/4% convertible debentures due 2004 that were issued by TCA.

We may use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although no acquisitions are planned or being negotiated as of the date of this prospectus, and no portion of the net proceeds have been allocated for any specific acquisition. Pending these uses, the net proceeds will be invested in investment-grade interest-bearing securities.

The principal purposes of the offering are to provide partial liquidity for our principal shareholders, and to increase our capitalization, financial flexibility and the liquidity for our common stock. As of the date of this

prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of the offering. Accordingly, our management will have broad discretion in the application of net proceeds.

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.

PRICE RANGE OF COMMON STOCK

Our common stock is traded on the Nasdaq National Market under the symbol "THOR." The following table sets forth, for the periods indicated, the high and low closing sales prices per share of our common stock, as reported by the Nasdaq National Market.

	HIGH	LOW
Fiscal Year 1999		
First Quarter	$ 8.63	$ 6.25
Second Quarter	11.00	6.50
Third Quarter	11.63	6.38
Fourth Quarter	9.75	5.50
Fiscal Year 2000		
First Quarter	$19.88	$ 8.50
Second Quarter	18.63	8.50
Third Quarter	24.75	15.13
Fourth Quarter	20.56	7.75
Fiscal Year 2001		
First Quarter	$12.88	$ 7.09
Second Quarter	15.55	6.56
Third Quarter	20.02	13.77
Fourth Quarter (through October 22, 2001)	20.85	16.90

The last reported sale price of common stock on the Nasdaq National Market on October 22, 2001 was $20.25 per share. At September 29, 2001, there were approximately 956 holders of record of our common stock, including multiple beneficial holders at depositories, banks and brokers listed as a single holder in the "street" name of each respective depository, bank or broker.

CAPITALIZATION

The following table sets forth our capitalization at September 29, 2001 on an actual basis, and on an as adjusted basis to reflect our receipt of the estimated net proceeds of $39.5 million from the sale of common stock in this offering, after deducting estimated fees of the underwriters and the portion of the estimated offering expenses that will be paid by us. This table should be read in conjunction with our financial statements and accompanying notes incorporated by reference into this prospectus.

The outstanding share information in the table excludes:

- 5,817,961 shares of common stock reserved for issuance upon the exercise of stock options outstanding on September 29, 2001 at a weighted average exercise price of $9.97 per share; and

- 1,457,682 shares of common stock reserved for issuance upon conversion of the outstanding 4 3/4% convertible debentures issued by TCA at a conversion price of $37.62 per share.

	SEPTEMBER 29, 2001	
	ACTUAL	AS ADJUSTED
	(IN THOUSANDS)	
Cash, cash equivalents and short-term investments	$ 89,652	$129,189
Restricted investments	45,794	45,794
4 3/4% convertible subordinated debentures due 2004	54,838	54,838
Preferred stock, 2,500,000 shares authorized; no shares issued and outstanding	--	--
Common stock, 100,000,000 shares authorized; 55,342,262 shares issued and outstanding; and 57,397,262 shares issued and outstanding as adjusted	394,267	433,804
Deferred compensation	(586)	(586)
Accumulated deficit	(31,226)	(31,226)
Accumulated translation adjustment	12	12
Total shareholders' equity	$362,467	$402,004
Total capitalization	$417,305	$456,842

DILUTION

If you invest in our common stock, your interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock after this offering.

Our net tangible book value at September 29, 2001 was $63.9 million, or $1.15 per share of common stock. Net tangible book value per share represents total tangible assets less total liabilities divided by the number of outstanding shares of common stock on September 29, 2001. Our net tangible book value at September 29, 2001 after giving effect to the sale of the 2,055,000 shares of common stock by our company at an assumed public offering price of $20.25 per share, and after deducting estimated underwriting discounts and the portion of estimated offering expenses that will be paid by us, would be $103.4 million or $1.80 per share. This represents an immediate increase in the tangible book value of $0.65 per share to existing shareholders and an immediate dilution of $18.45 per share to new investors, or approximately 91% of the assumed offering price of $20.25 per share. The following table illustrates this per share dilution:

Assumed public offering price per share.....		$20.25
Net tangible book value per share at September 29, 2001...	$1.15	
Increase in net tangible book per share attributable to this offering.....	0.65	
Net tangible book value per share after this offering.....		1.80
Dilution in net tangible book per share to new investors....		$18.45

The following table shows, at September 29, 2001, the number of shares of common stock purchased from us, the total consideration paid to us and the average price paid per share by previous investors and by new investors purchasing common stock in this offering at an assumed public offering price of $20.25 per share, before deducting estimated underwriting discounts and the portion of estimated offering expenses that will be paid by us.

	SHARES PURCHASED		TOTAL CONSIDERATION		AVERAGE
	NUMBER	PERCENTAGE	AMOUNT	PERCENTAGE	PER SH
			(IN THOUSANDS)		
Previous investors.....	55,342,262	96%	$394,267	90%	$ 7.1
New investors.....	2,055,000	4%	41,614	10%	20.2
Total.....	57,397,262	100%	$435,881	100%	$ 7.5

The computations in the table above assume no exercise of any outstanding stock options or conversion of outstanding debentures after September 29, 2001. At September 29, 2001, there were options outstanding to purchase a total of 5,817,961 shares of common stock at a weighted average exercise price of $9.97 per share and 1,457,682 shares of common stock reserved for issuance upon conversion of outstanding debentures issued by TCA at a conversion price of $37.62 per share and, if any of these options or debentures are exercised or converted, there will be further dilution to new investors.

SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data presented below for the three fiscal years ended December 30, 2000 is derived from audited financial statements incorporated by reference in this prospectus. The interim selected consolidated financial data for the nine-month periods ended September 2000 and 2001 has been prepared in accordance with accounting principles generally accepted in the United States without audit and, in our opinion, reflect all adjustments necessary (consisting only of normal recurring adjustments) to present fairly our financial position and results of operations for the periods shown. The data set forth below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus, the consolidated financial statements of Thoratec filed with the SEC in our Form 10-K on March 29, 2001, the consolidated financial statements of TCA filed with the SEC on Form 8-K/A on March 30, 2001, the interim consolidated financial statements of Thoratec filed with the SEC on Forms 10-Q on May 14, 2001 and August 13, 2001, the interim consolidated

financial statements of TCA filed with the SEC on Form 10-Q on November 9, 2000, pro forma financial information on Form 8-K filed with the SEC on October 24, 2001, and our other filings made with the SEC. Certain reclassifications have been made to the financial statements previously filed with the SEC to conform to current practice.

The merger of Thoratec with TCA was completed on February 14, 2001. We issued new shares of our common stock to the shareholders of TCA in exchange for all the outstanding common stock of TCA at an exchange ratio of 0.835 shares of Thoratec stock for each share of TCA. The merger with TCA was accounted for as a reverse acquisition because former shareholders of TCA owned a majority of our outstanding stock subsequent to the merger. For accounting purposes, TCA is deemed to have acquired Thoratec and therefore for fiscal years 1998, 1999 and 2000 all financial information presented herein represents the results of operations of TCA. The September 2001 consolidated financial information presented herein includes the financial results of TCA for the full nine-month period ended September 29, 2001 and our financial results for the post-merger period from February 14, 2001 through September 29, 2001. The pro forma columns of the statement of operations data for the fiscal year 2000 and the nine-month period ended September 29, 2001 reflect our operating results as if the merger with TCA had occurred at the beginning of fiscal year 2000. The pro forma statement of operations data is presented for informational purposes only and is not indicative of the operating results that would have occurred had the merger been consummated as of the above dates, nor are they necessarily indicative of future operating results. The weighted average number of common shares previously reported by TCA has been adjusted for all periods to reflect the exchange ratio of 0.835 to 1.

Our fiscal year ends on the closest Saturday to December 31. Accordingly, our fiscal year will periodically contain more or less than 365 days. For example, fiscal 1998 ended on January 1, 1999, fiscal 1999 ended on December 31, 1999 and fiscal 2000 ended on December 30, 2000. Our fiscal quarters are three-month periods that end on the Saturday closest to the end of the applicable calendar quarter. The first nine months of 2000 ended on September 30, 2000. The first nine months of 2001 ended on September 29, 2001.

	FISCAL YEAR			PRO FORMA FISCAL YEAR	NINE MONTHS EN SEPTEMBER	
	1998	1999	2000	2000	2000	2
				(UNAUDITED)	(UNAUDITED)	(UNA
				(IN THOUSANDS, EXCEPT PER SHARE DATA)		
STATEMENT OF OPERATIONS DATA:						
Product sales	$65,301	$78,611	$83,396	$113,825	$61,928	$ 7
Cost of product sales	27,057	33,326	34,830	45,798	25,858	3
Gross profit	38,244	45,285	48,566	68,027	36,070	4
Research and development	12,277	16,044	16,190	23,454	11,816	1
Selling, general and administrative	18,960	22,018	23,587	34,580	17,601	2
Amortization of goodwill and purchased intangible assets	--	--	--	17,884	--	1
In-process research and						

development	--	--	--	--	--	7
Merger, restructuring and other costs	--	--	1,831	6,000	1,094	
Total operating expenses	31,237	38,062	41,608	81,918	30,511	13
Other operating income	--	--	--	331	--	
Income (loss) from operations	7,007	7,223	6,958	(13,560)	5,559	(9
Interest and other income -- net	5,432	4,014	5,005	5,719	3,726	
Income (loss) before income taxes	12,439	11,237	11,963	(7,841)	9,285	(9
Income tax expense (benefit)	4,619	2,865	4,630	500	3,573	(
Net income (loss) before extraordinary item	$ 7,820	$ 8,372	$ 7,333	$ (8,341)	$ 5,712	$(8
Basic and diluted earnings (loss) per share before extraordinary item	$ 0.24	$ 0.26	$ 0.23	$ (0.15)	$ 0.18	$
Weighted average shares outstanding						
Basic	32,406	32,100	32,193	54,024	32,188	5
Diluted	32,552	32,132	32,209	54,024	32,208	5

The as adjusted column of the balance sheet data at September 29, 2001 reflects our sale of 2,055,000 shares of common stock under this prospectus at an assumed public offering price of $20.25 per share and the application of the net proceeds, after deducting the estimated fees of the underwriters and our share of estimated offering expenses.

	SEPTEMBER 29, 2001	
	ACTUAL	AS ADJUSTED
	(UNAUDITED) (IN THOUSANDS)	
CONSOLIDATED BALANCE SHEET DATA:		
Cash, cash equivalents and short-term investments	$ 89,652	$129,189
Restricted investments	45,794	45,794
Total assets	518,771	558,308
Long-term debt	54,838	54,838
Total shareholders' equity	362,467	402,004

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The statements in "Management's Discussion and Analysis of Financial Condition and Results of Operations" that relate to future plans, events or performance are forward-looking statements which involve risks and uncertainties. Actual results, events or performance may differ materially from those anticipated in these forward-looking statements as a result of a variety

of factors, including those set forth under "Risk Factors" and elsewhere in this prospectus. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. We undertake no obligation to publicly release the result of any revisions to these forward-looking statements that may be needed to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

OVERVIEW

We are the 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. Our VADs are used primarily by these CHF patients to perform some or all of the pumping function of the heart and we currently offer the widest range of products to serve this market. We believe that our long-standing reputation for quality and innovation and our excellent relationships with leading cardiovascular surgeons worldwide position us to capture growth opportunities in the expanding congestive heart failure market. We also develop and sell products that are used by physicians and hospitals for vascular and diagnostic applications that include vascular grafts, blood coagulation testing and skin incision devices. We conduct business both domestically and internationally.

The Merger with Thermo Cardiosystems

On February 14, 2001, we completed our merger with TCA. Pursuant to the merger agreement between Thoratec and TCA dated October 3, 2000, we issued 32,226,074 shares of our common stock to the shareholders of TCA in exchange for all the outstanding common stock of TCA (38,594,281 shares outstanding as of February 14, 2001) at an exchange ratio of 0.835 to 1. Immediately following the transaction, TCA's shareholders owned 59% of our then outstanding common stock and our former shareholders owned the remaining shares of our common stock. Thermo Electron Corporation, which we refer to as Thermo Electron, the majority shareholder of TCA prior to the merger, received 19,312,959 shares of the 32,226,074 newly issued shares. Immediately following the merger, Thermo Electron owned 35% of our then outstanding shares of common stock. Pursuant to the terms of a Registration Rights Agreement between us and Thermo Electron dated October 3, 2000, we filed a Registration Statement on Form S-3 with the SEC, which became effective on June 15, 2001, to register for resale 4,828,240 shares of our common stock held by Thermo Electron. Subsequent to that filing, Thermo Electron sold substantially all of the 4,828,240 registered shares. As of September 29, 2001, Thermo Electron owned 14,560,544 of our shares, representing approximately 26% of our total outstanding shares. After completion of this offering, Thermo Electron will own approximately 15% of our outstanding common stock.

The merger with TCA was accounted for under the purchase method of accounting and was treated as a reverse acquisition because the shareholders of TCA owned the majority of our common stock after the merger. TCA was deemed the acquiror for accounting and financial reporting purposes. Accordingly, all historic financial information included in this prospectus reflects TCA's results prior to the completion of the merger on February 14, 2001.

Due to the reverse acquisition, Thoratec's assets and liabilities were recorded based upon estimated fair values at the date of acquisition. As of September 29, 2001, $309.5 million of the purchase price of $346.2 million has been allocated to goodwill and other purchased intangible assets. As a result of the merger, $76.9 million relating to in-process research and development was expensed upon completion of

the merger. The goodwill and other intangibles will be amortized over their estimated useful lives of six to twenty years until we adopt Statement of Financial Accounting Standards (SFAS) No. 142, "Goodwill and Other Intangible Assets." SFAS No. 142 requires companies to cease amortizing goodwill that existed at June 30, 2001 and also establishes a new method of testing goodwill for impairment on an annual basis or on an interim basis if an event occurs or circumstances change that would reduce the fair value of a reporting unit below its carrying value. We will adopt SFAS No. 142 at the beginning of fiscal year 2002 and we will stop amortizing goodwill and begin testing goodwill for impairment under the new standard. If an impairment occurs, such impairment could harm our future results of operations. Currently, amortization of goodwill is $5.0 million per year.

Restructuring Plan

In June 2001, we approved a restructuring plan to consolidate all of our ventricular assist device manufacturing operations to our manufacturing facilities and headquarters in Pleasanton, California. The restructuring initiatives, which have already commenced, are related to our desire to provide maximum value to customers through achievement of operating efficiencies. We estimate that substantial savings will result upon completion of this plan. This plan specifically provides for the reduction of approximately 90 of our manufacturing and related workforce at our Woburn and Chelmsford, Massachusetts facilities, both of which were acquired in the merger with TCA in February 2001. We notified the affected employees during the second quarter of 2001 both through direct personal contact and written notification. Our HeartMate family of products, which are currently manufactured at the two Massachusetts facilities, will be transitioned to the Pleasanton facility. This plan is estimated to take 18 months because of FDA certification requirements for the new manufacturing activities in Pleasanton. Through September 29, 2001, we have accrued $1.0 million of restructuring charges, in accordance with Emerging Issues Task Force (EITF) 94-3, "Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity," and Staff Accounting Bulletin (SAB) 100, "Restructuring and Impairment Charges." These charges represent estimated severance costs and stock option acceleration charges.

RESULTS OF OPERATIONS

NINE MONTHS ENDED SEPTEMBER 29, 2001 AND SEPTEMBER 30, 2000

Product Sales

Product sales in the first nine months of 2001 were $78.4 million compared to $61.9 million in the first nine months of 2000, an increase of $16.5 million or 27%. This increase was attributable to the addition of Thoratec product sales of $22.6 million, partially offset by a $6.2 million reduction in sales of HeartMate products due to significant distractions and uncertainties among Thermo Cardiosystems' sales force during the first quarter while the merger was being closed.

On a pro forma basis, as if the merger had occurred at the beginning of our 2000 fiscal year, product sales in the first nine months of 2001 were $81.9 million compared to $83.0 million in the first nine months of 2000, a decrease of $1.1 million or 1%. However, for the three months ended September 29, 2001, product sales were $28.7 million compared to $25.6 million on a pro forma basis for the three months ended September 30, 2000, representing an increase of $3.1 million or 12%. This 12% growth in revenue for the quarter was comprised of a 21% increase in revenues from our circulatory support products offset by a 6%

reduction in sales of our blood coagulation testing and skin incision devices.

Gross Profit

Gross profit in the first nine months of 2001 was $42.1 million, or 54% of product sales, compared to gross profit of $36.1 million in the first nine months of 2000, or 58% of product sales. This decrease in gross profit as a percentage of sales was primarily due to a lower proportion of domestic sales to total product sales. Ventricular assist devices that are sold in the United States have a higher gross margin than those sold in the rest of the world. In addition, production costs for the HeartMate product line were higher in the first nine months of 2001 due to $1.0 million of employee retention costs related to

manufacturing and $0.4 million of write-offs of product inventory related to the HeartMate pneumatic driver which was discontinued in the second half of 2001. In addition, we incurred $0.3 million of manufacturing costs associated primarily with the introduction of new products. Without these charges, gross profit for the first nine months of 2001 would have been $43.8 million, or 56% of product sales.

On a pro forma basis, gross profit in the first nine months of 2001 was $44.2 million, or 54% of product sales, compared to gross profit in the first nine months of 2000 of $49.4 million, or 60% of product sales. The decrease in gross profit as a percentage of sales was attributable to a lower proportion of domestic sales to total product sales, and the above-mentioned charges. Without these charges, gross profit for the first nine months of 2001 would have been $45.9 million, or 56% of product sales.

Research and Development

Research and development expenses in the first nine months of 2001 were $17.0 million, or 22% of product sales, compared to $11.8 million, or 19% of product sales in the first nine months of 2000, an increase of $5.2 million or 44%. This increase resulted from combining Thoratec's research and development expenses of $5.4 million with TCA's expenses after the merger.

On a pro forma basis, research and development expenses in the first nine months of 2001 were $18.0 million, or 22% of product sales, compared to $17.3 million, or 21% of product sales, for the first nine months of 2000, an increase of $0.7 million or 4%. This increase was attributable to increased spending of $1.3 million for improvements to the HeartMate and the Thoratec VAD system, partially offset by reduced spending of $0.5 million for the HeartMate II and HeartMate III projects.

Selling, General and Administrative

Selling, general and administrative expenses in the first nine months of 2001 were $24.0 million, or 31% of product sales, compared to $17.6 million, or 28% of product sales, in the first nine months of 2000, an increase of $6.4 million or 36%. This increase resulted from combining Thoratec's selling, general and administrative expenses with TCA's selling, general and administrative expenses, partially offset by lower overall employee related expenses.

On a pro forma basis, selling, general and administrative expenses in the first nine months of 2001 were $25.6 million, or 31% of product sales, compared to $25.4 million, or 31% of product sales, for the first nine months of 2000, an increase of $0.2 million or 1%. This increase was attributable to $0.4 million

for higher corporate and patent legal costs, $0.4 million for higher employee costs related to the promotion, recruiting and relocation of personnel as well as overall higher employee salary costs and $0.3 million for higher audit and financial consulting services. Partially offsetting the increase was a $1.0 million reduction in selling and marketing costs associated with staffing reductions after the completion of the merger with Thermo Cardiosystems.

Amortization of Goodwill and Purchased Intangible Assets

Amortization of purchased intangibles and goodwill in the first nine months of 2001 was $11.3 million. There was no such amortization in the first nine months of 2000. All purchased intangibles and goodwill resulted from the merger with Thermo Cardiosystems. Our goodwill and other intangibles will be amortized over their estimated useful lives of six to twenty years until we adopt SFAS No. 142 at the beginning of fiscal year 2002. Thereafter, we will stop amortizing goodwill and will begin testing our goodwill for impairment under the new standard contained in SFAS No. 142.

Merger, Restructuring and Other Costs

Merger, restructuring and other costs in the first nine months of 2001 were $6.6 million compared to $1.1 million in the first nine months of 2000, an increase of $5.5 million or 500%. This increase was caused by employee severance and pre-merger retention costs of $2.4 million, consulting, accounting and legal expenses of $1.4 million, restructuring costs of $1.0 million, which represented estimated severance

costs related to the consolidation of ventricular assist device manufacturing operations, and costs of $0.7 million related to the events of September 11, 2001.

In-process Research and Development

In-process research and development expense in the first nine months of 2001 was $76.9 million. There was no such expense in the first nine months of 2000. All in-process research and development was related to the merger with Thermo Cardiosystems, representing a one-time charge related to acquired in-process research and development that had not yet reached technological feasibility and had no alternative future uses.

Interest and Other Income - Net

Interest and other income - net in the first nine months of 2001 was $2.3 million compared to $3.7 million in the first nine months of 2000, a decrease of $1.4 million or 39%. This decrease was due to a $1.3 million reduction in interest income caused by both lower cash balances and a reduction in interest rates.

Income Taxes

Our effective tax benefit rate in the first nine months of 2001 was 3% compared to an effective tax provision rate of 38% in the first nine months of 2000. Our effective tax benefit rate for 2001 differed from the statutory federal income tax rate due to our net loss position before income taxes in the first nine months of 2001. For the first nine months of 2000, our effective tax provision rate exceeded the federal statutory income tax rate due to the impact of state income taxes.

Net Income (Loss) Before Extraordinary Item

As a result of the foregoing factors, net loss before extraordinary item was $88.3 million in the first nine months of 2001 compared to net income before extraordinary item of $5.7 million in the first nine months of 2000.

FISCAL YEARS 2000 AND 1999

Product Sales

Product sales in 2000 were $83.4 million compared to $78.6 million in 1999, an increase of $4.8 million or 6%. Ventricular assist device revenues increased to $43.1 million in 2000 from $39.8 million in 1999, due to an increase in revenues from our HeartMate products, principally due to higher demand. Product sales from blood coagulation testing and skin incision devices increased to $40.3 million in 2000 from $38.8 million in 1999 due to a $2.0 million increase in revenues from blood coagulation testing systems due to increased demand and the introduction of new products, offset in part by a decrease in revenues from skin incision devices due to lower demand caused by competitive pricing pressures.

Gross Profit

Gross profit in 2000 was $48.6 million, or 58% of product sales, compared to $45.3 million, or 58% of product sales in 1999. An increase in the average sales price for the HeartMate, and improved overhead absorption were offset by a decrease in gross profit margin for blood coagulation testing and skin incision devices during fiscal year 2000.

Research and Development

Research and development expenses in 2000 were $16.2 million, or 19% of product sales, compared to $16.0 million, or 20% of product sales, in 1999, an increase of $0.2 million or 1%. This increase was due to increased expenses relating to ventricular assist products for the development of the HeartMate II and continuing expenses related to the REMATCH trial.

Selling, General and Administrative

Selling, general, and administrative expenses in 2000 were $23.6 million, or 28% of product sales, compared to $22.0 million, or 28% of revenues, in 1999, an increase of $1.6 million or 7%. This increase was due to an increase in selling and marketing expenses in support of increased product sales.

Merger, Restructuring and Other Costs

Merger, restructuring and other charges in 2000 were $1.8 million. All merger, restructuring and other charges were due to employee retention costs in connection with the merger. There were no such charges in 1999.

Interest and Other Income - Net

Interest and other income - net in 2000 was $5.0 million compared to $4.0 million in 1999, an increase of $1.0 million or 25%. Interest income increased to $7.6 million in 2000 from $7.1 million in 1999, due to an increase in interest rates. Interest expense decreased to $2.9 million in 2000 from $3.6 million in 1999, due to our purchase of $15.2 million principal amount of our 4.75% subordinated convertible debentures due 2004.

Income Taxes

The effective tax rate in 2000 was 39% compared to 25% in 1999. Our effective tax rate exceeded the statutory federal income tax rate in 2000 due to the impact of state income taxes. Our effective tax rate was lower than the statutory federal income tax rate in 1999 as a result of a favorable resolution of our claim for prior-year research and development tax credits. The effect of the credit decreased the tax provision recorded in 1999 by $1.5 million.

Net Income (Loss) Before Extraordinary Item

As a result of the foregoing factors, net income before extraordinary item was $7.3 million for 2000 compared to $8.4 million for 1999.

FISCAL YEARS 1999 AND 1998

Product Sales

Product sales in 1999 were $78.6 million compared to $65.3 million in 1998, an increase of $13.3 million or 20%. Our ventricular assist device sales increased to $39.8 million in 1999 from $28.8 million in 1998. The increase in VAD sales was due to a $9.7 million increase in sales from our HeartMate products due to an increase in demand as a result of an additional FDA approval for commercial sale, which was granted in September 1998 and, to a lesser extent, a 13% price increase for the HeartMate, effective November 1998. Product sales from blood coagulation testing and skin incision devices increased to $38.8 million in 1999 from $36.5 million in 1998, primarily due to a $2.0 million increase in sales from our skin incision devices and ProTime Microcoagulation System, due to an increase in demand.

Gross Profit

Gross profit in 1999 was $45.3 million, or 58% of product sales, compared to $38.2 million, or 59% of product sales, in 1998. Gross profit margin for blood coagulation testing and skin incision devices decreased primarily due to changes in product mix and pricing strategies. This decrease was offset in part by an increase in gross profit margin of ventricular assist devices due to an increase in demand resulting in higher overhead absorption.

Research and Development

Research and development expenses in 1999 were $16.0 million, or 20% of product sales, compared to $12.3 million, or 19% of product sales, in 1998, an increase of $3.7 million or 30%. This increase was due to a $2.7 million increase in expenses for ventricular assist devices relating to the REMATCH trial. To a lesser extent, research and development expenses increased due to increased product development activities for blood coagulation testing and skin incision devices.

Selling, General and Administrative

Selling, general, and administrative expenses in 1999 were $22.0 million, or 28% of product sales, compared to $19.0 million, or 29% of product sales, in 1998, an increase of $3.0 million or 16%. This increase was due to a $1.5 million increase in costs for sales and marketing staff for ventricular assist devices and, to a lesser extent, higher advertising costs relating to the HeartMate, which was approved by the FDA for commercial sale in September 1998.

Interest and Other Income - Net

Interest and other income - net in 1999 was $4.0 million compared to $5.4 million in 1998, a decrease of $1.4 million or 26%. Interest income decreased to $7.1 million in 1999 from $7.4 million in 1998, due to a decrease in interest rates and, to a lesser extent, lower average invested balances. Interest expense was $3.6 million in both periods. Other income decreased by $1.1 million due to the expiration of several government research and development contracts.

Net Income (Loss) Before Extraordinary Item

As a result of the foregoing factors, net income before extraordinary item was $8.4 million in 1999 compared to $7.8 million for 1998.

Income Taxes

Our effective tax rate in 1999 was 25% compared to 37% in 1998. The effective tax rate of 25% in 1999 resulted from a favorable resolution of our claim for prior-year research and development tax credits. The effect of the credit decreased the tax provision recorded in 1999 by $1.5 million. The effective tax rate of 37% in 1998 exceeded the statutory federal income tax rate due to the impact of state income taxes.

LIQUIDITY AND CAPITAL RESOURCES

At the end of September 2001, we had working capital of $125.6 million compared with $149.2 million at the end of December 2000. Cash, cash equivalents and short-term investments at the end of September 2001 were $89.7 million compared to $128.9 million at the end of December 2000, a decrease of $39.2 million. This decrease was due principally to pledging $45.0 million in short-term investments as collateral for a letter of credit guarantee to Thermo Electron related to Thermo Electron's guarantee of our outstanding subordinated debentures which are due in 2004. These investments are classified as restricted investments on the September 29, 2001 balance sheet. As of September 29, 2001, the outstanding principal amount of our subordinated debentures was $54.8 million and our restricted investments increased to $45.7 due to interest earned. For the nine-month period ended September 29, 2001, we received interest payments of $3.8 million on our cash and short-term and restricted investments and made interest payments of $1.3 million on our subordinated debentures.

During the nine months ended September 29, 2001, we made cash payments of $5.0 million for merger, restructuring and other costs. These payments consisted mainly of employee retention and severance costs and legal and accounting costs related to the merger transaction. During the nine months ended September 29, 2001, TCA incurred $5.8 million of merger transaction costs, consisting principally of banking, legal and accounting costs, which were paid and capitalized in the purchase consideration (now a component of goodwill).

On April 12, 2001, we announced a stock repurchase program under which our common stock with a market value up to $20 million may be acquired in the open market or in privately negotiated transactions. The number of shares to be purchased and the timing of purchases is based on several conditions, including the price of our stock, general market conditions and other factors. Through September 29, 2001, $1.7 million in common stock repurchases have been made, representing 192,700 shares. These repurchased shares were subsequently retired.

During the nine months ended September 29, 2001, we have made purchases of $4.7 million for capital equipment, including rental and support equipment used by our customers to operate the ventricular assist devices.

During the first nine months of 2001, we received cash of $6.3 million from

the exercise of employee stock options.

We believe that cash on-hand, short-term investments, proceeds from this offering and expected cash flow from operations will be sufficient to fund our operations and capital requirements for the foreseeable future. We expect that our operating expenses will increase in future periods as we spend more on product manufacturing, marketing and research and development of new product lines as well as incur substantial costs associated with the consolidation of our VAD manufacturing operations.

The impact of inflation on our financial position and results of operations was not significant during the nine-month periods ended September 2001 and September 2000.

QUANTITATIVE AND QUALITATIVE DISCLOSURE OF MARKET RISK

We do not currently use derivative financial instruments in our operations or investment portfolio. We do not have material exposure to market risk associated with changes in interest rates. Our subordinated debentures carry a fixed rate of interest and are currently callable at par value. Our investment portfolio at the end of the third quarter 2001 consisted of short-term state and municipal government bonds and money market funds that are classified as available-for-sale and have maturities of less than 90 days. We do not expect to be subject to material interest rate risk with respect to our short-term investments. We do not believe we have any other material exposure to market risk associated with interest rates.

We conduct business in foreign countries. Our international operations consist primarily of sales and service personnel for our ventricular assist products. These employees report into our U.S. sales and marketing group and are internally reported as part of that group. All assets and liabilities of our non-U.S. operations are translated into U.S. dollars at the fiscal period-end exchange rates. The resulting translation adjustments are included in comprehensive income. The period-end translation of the non-functional currency balances (the result of foreign sales, foreign expenses, and intercompany transactions) in our wholly owned subsidiary in the United Kingdom at the fiscal period-end exchange rate into the functional currency of our subsidiary results in foreign currency exchange gains and losses. These foreign currency exchange gains and losses are included in interest and other income-net. Net foreign currency exchange loss was approximately $74,000 for the first nine months of 2001. There were no such gains or losses in the first nine months of 2000 as Thoratec's United Kingdom subsidiary became a part of our operations upon the completion of our merger with TCA on February 14, 2001.

Currently, we do not expect to be subject to material foreign currency risk with respect to future costs or cash flows from our foreign operations and, to date, we have not entered into any significant foreign currency forward exchange contracts or other derivative financial instruments to hedge the effects of adverse fluctuations in foreign currency exchange.

BUSINESS

OVERVIEW

We are the 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. Our VADs are used primarily by these CHF patients to perform some or all of the pumping function of the heart and we currently offer the widest range of products to serve this market. We believe that our long-standing reputation for quality and innovation and our excellent relationships with leading cardiovascular surgeons worldwide position us to capture growth opportunities in the expanding congestive heart failure market.

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 ventricular assist devices are regarded as the most versatile and widely used circulatory support systems for patients with late-stage CHF. We currently market devices that may be implanted or worn outside the body and that are suitable for treatments of different durations for patients of varying sizes and ages. We estimate that our VADs have treated over 4,700 patients, or more than 3.5 times as many patients as our nearest competitor. 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. We estimate the combined market size for these indications to be up to 200,000 patients annually in the United States alone. We have submitted PMA Supplements for both these indications and expect to receive FDA approvals for each by the end of 2002.

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 the 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 parent company of TCA, Thermo Electron, today owns approximately 26% of our outstanding stock and will own approximately 15% after this offering.

THE REMATCH TRIAL

We expect that on November 12, 2001 results of a clinical trial called REMATCH, or Randomized Evaluation of Mechanical Assistance for the Treatment of Congestive Heart Failure, will be presented at the American Heart Association Scientific Sessions. We also expect that soon thereafter, the results will be published in a peer-reviewed medical journal. The REMATCH trial was a collaboration among the National Institutes of Health, or NIH, as lead sponsor, Columbia University and our company. We are a partial sponsor of the REMATCH trial.

The REMATCH trial 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 20 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." We expect that the REMATCH publication will provide a detailed evaluation of survivability and impact on patient quality of life.

Preliminary results from the REMATCH trial show a significant survival benefit for patients using the HeartMate compared to maximum drug therapy. Based on a review of these data, the FDA approved an IDE Supplement allowing up to 30 additional 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 as an alternative to maximum drug therapy for patients suffering from late-stage CHF. If approved by the FDA, the HeartMate will become the first ventricular assist device approved for use as an alternative treatment to maximum drug therapy for patients suffering from late-stage CHF. We have already initiated discussions with the Centers for Medicare and Medicaid Services (formerly HCFA) regarding reimbursement coverage 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.

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. We believe that there are currently 4.7 million patients in the United States with CHF and that some of these patients who are currently not using ventricular assist devices can benefit from our products. We are in the process of obtaining FDA approvals to market our products for a number of new indications, including the following:

- Alternative to current medical therapies. We have filed a PMA Supplement with the FDA to obtain approval to market the HeartMate as an alternative to maximum drug therapy for treating late-stage CHF patients who are not candidates for heart transplants. We anticipate that we could receive FDA approval within the next 12 months and can be marketing for this

indicated use shortly thereafter.

- Therapeutic recovery. We believe that the use of our Thoratec VAD system may lead to recovery of the natural heart in certain patients. We have submitted a PMA Supplement for this indication and hope to receive approval by the end of 2001. Although it is difficult to estimate the size of this market, we believe that the patient population that could benefit from this use could be substantial.

INCREASE PENETRATION OF EXISTING MARKETS. We plan to treat a greater number and variety of patients within our current customer base. To accomplish this, we are leveraging our existing relationships with leading cardiac surgeons and hospitals and utilizing our existing sales channels to gain acceptance and adoption of our products.

LEVERAGE BENEFITS OF OUR MERGER WITH TCA. We believe that our merger with TCA resulted in substantial and significant strategic benefits including our ability to combine sales forces and share research and development and manufacturing resources. For example, we are in the process of consolidating our manufacturing facilities into our Pleasanton facility, which we expect will result in significant cost savings. In addition, integrating our sales force with TCA's sales force has created cross-selling opportunities to further penetrate our markets. Prior to the merger with TCA, we and TCA had different sales forces selling our respective products to somewhat different hospitals and surgeons. By combining our distribution channels, we are now able to offer both the TCA and Thoratec products to a greater number of hospitals, surgeons and patients.

OFFER A BROAD RANGE OF PRODUCT SOLUTIONS. We believe that our broad and diverse product offering is an important competitive advantage because it allows us to address the various preferences of surgeons and the clinical needs of a wide variety of patients, as well as the economic needs and concerns of third party payors. An important part of our growth strategy is to further broaden our product line to meet customer needs by developing new products internally or acquiring or licensing new products. Over the next 18 months, we intend to further develop a number of new or improved products including next generation versions of both our HeartMate and Thoratec VAD.

FOCUS ON AND PARTNER WITH LEADING HEART CENTERS. We have developed extremely strong, long-standing relationships with leading cardiovascular surgeons and heart centers worldwide. We believe that no other cardiac assist company enjoys the same depth of relationship and access to these customers. Maintaining and expanding these relationships is an important part of our growth strategy, particularly for the development and introduction of new products and the pursuit of additional indications for our existing products.

GROW INTERNATIONALLY. On a pro forma basis, for fiscal year 2000, 16% of our revenue was derived from sources outside of the United States. We estimate that the international market opportunity for our products is at least as large as the market opportunity in the United States. Our recent merger greatly expanded our international presence, particularly in Japan and Latin America. We plan to continue to grow internationally by leveraging our combined distribution channels and by developing marketing strategies on a country-by-country basis.

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.

According to the American Heart Association, or the AHA, there are 4.7 million CHF patients in the United States and approximately 550,000 new cases are diagnosed each year. The AHA also estimates that approximately 50% of CHF patients die within five years of diagnosis. We believe that the number of patients suffering from CHF who could benefit from some form of cardiac assist could be as many as 200,000 annually. While the number of treatment options for CHF has increased in recent years, the use of medication remains the most widely used approach for treatment of the disease. These drug therapies include ACE inhibitors, anti-coagulants and beta-blockers which facilitate blood flow, thin the blood or help the heart work in a more efficient manner. Other procedures used to treat CHF include angioplasty, biventricular pacing, valve replacement, bypass and left ventricular reduction surgery.

Despite attempts to manage CHF through drug therapy, there is currently only one curative treatment for the disease - a heart transplant. Unfortunately, the number of hearts available for transplant each year can meet the needs of only a small number of the patients who need a heart transplant. The United Network for Organ Sharing reported that there were only 2,340 hearts available for transplant in the United States in 1999. At any given time, there are approximately 4,000 to 5,000 patients on the U.S. national transplant waiting list and we believe a comparable number of patients are waiting in Europe. The median wait for a donor heart by patients on a heart transplant waiting list is approximately nine months, and many patients have to wait as long as one to two years before receiving one of the few donor hearts available. In 1999, approximately 17% of such patients died while waiting for a donor heart.

In the United States, there is currently one FDA-approved indication for ventricular assist devices for patients with CHF - as a bridge to heart transplant. We are pursuing two additional indications for our VAD products - as an alternative to maximum drug therapy and for therapeutic recovery of the heart. If approved, these additional indications will represent larger market opportunities than the current indication. Beyond the CHF markets, ventricular assist devices are also approved for use during recovery following coronary artery bypass graft, or CABG, surgery. All four indications are summarized below.

BRIDGE TO TRANSPLANT

Ventricular assist devices provide additional cardiac support for patients who are in late-stage heart failure waiting for a donor heart. Of the approximately 4,000 to 5,000 patients on the waiting list for a heart transplant in the United States, we estimate that approximately 25% will receive a ventricular assist device.

We believe that the percentage of patients bridged to transplant continues to increase with surgeons' level of comfort with the technology, particularly for longer-term support cases. There are currently four devices approved in the United States as a bridge to transplant, three of which are manufactured by us. We estimate that the bridge to transplant indication represents a worldwide market opportunity of up to 8,000 patients annually.

ALTERNATIVE TO MAXIMUM DRUG THERAPY

We are pursuing approval to use our VAD as an alternative to maximum drug

therapy for patients with late-stage CHF who are not candidates for heart transplantation due to other degenerative illnesses or advanced age. We believe that the success in transitioning this market from maximum drug therapy to ventricular assist devices is dependent on the development of VADs, like our HeartMate, with substantial longevities and proof of clinical efficacy.

The results of the REMATCH trial are expected to be presented at the American Heart Association Scientific Sessions on November 12, 2001 and published in a peer-reviewed medical journal soon. We have submitted a PMA Supplement for the HeartMate as an alternative to maximum drug therapy for patients suffering from late-stage CHF. These CHF patients are not candidates for heart transplants due to their age or medical condition. We estimate the size of this market opportunity at up to an additional 100,000 patients annually in the United States.

THERAPEUTIC RECOVERY

We believe that, for most patients, recovery of their own heart is a better alternative than either heart transplantation or permanent implantation of a blood pumping device. Based on recently reported cases of recovery in heart failure patients, we believe that our Thoratec VAD system is a potential therapy that can reverse the complications of late-stage heart failure in certain patients.

While this therapeutic recovery indication is not yet approved for our devices, we are actively investigating the worldwide experience with our VAD systems as a means of therapeutic recovery and the requirements for pursuing regulatory approval for this indication. Although it is not certain how many patients with CHF could benefit from this indication, based upon the percentage of patients with late-stage

CHF, we believe that the patient population could be substantial. We submitted a PMA Supplement to the FDA in December 2000 and expect to receive approval in the United States by the end of 2001. We are also formulating a regulatory and clinical strategy for non-U.S. markets.

RECOVERY FOLLOWING CARDIAC SURGERY

In addition to CHF, our devices are also used for patients who suffer from acute cardiac failure and undergo cardiac surgery. Following cardiac surgery, some patients have difficulty being weaned off heart/lung machines -- a complication that arises in approximately one to three percent of the more than 900,000 open-heart procedures performed each year. Many of these patients ultimately die from heart failure when the heart, weakened by disease and the additional trauma of surgery, fails to maintain adequate blood circulation. We believe that only a small portion of this market is currently being treated with VADs and this patient population could benefit substantially from further awareness and use of our VADs in this market.

OTHER MARKETS

In addition to the circulatory support market, we sell other devices including those that address the vascular graft access market. Our vascular grafts program has developed the Aria graft for patients undergoing CABG surgery or who have too few and/or poor quality vessels of their own to use for the procedure. The Aria is currently in clinical trials. We have also developed and are marketing the Vectra Vascular Access Graft, or Vectra, for patients undergoing renal hemodialysis.

We believe that the market opportunity for the Aria could be up to 20% of those patients who undergo CABG surgery but do not have healthy native vessels. Industry sources estimate that this market could be approximately 180,000 patients each year. Our Vectra product targets the estimated 225,000 prosthetic access vascular grafts implanted in hemodialysis patients annually.

Finally, our diagnostic products, which we sell through our ITC subsidiary, for blood coagulation testing and our single use skin incision equipment address the market for those patients who must monitor their blood chemistry. We estimate this market is smaller than our other markets but that we hold a leading position for these devices. We currently estimate that the market for these products is over $250 million.

OUR PRODUCTS

We offer two complementary circulatory support product lines:

- the Thoratec Ventricular Assist Device system, which we call the Thoratec VAD system, an external device for short to mid-term cardiac support; and

- the HeartMate Left Ventricular Assist system, which we call the HeartMate, an internal device for longer term cardiac support.

In addition to our cardiac assist products, we offer vascular access grafts, used in hemodialysis for patients with end stage renal disease. We are also developing a small diameter access graft for use in CABG surgery. Additionally, we sell whole-blood coagulation testing equipment used in bedside anticoagulation management, coagulation screening and skin incision devices for the drawing of blood from adult, children and infant patients.

CIRCULATORY SUPPORT PRODUCTS

Ventricular assist devices perform some or most of the pumping function of the heart in patients with severe heart failure. A cannula connects the left ventricle of the heart to a blood pump that is driven by a power source, which can be either electric or pneumatic. Blood flows from the left ventricle to the pump chamber, via the cannula. An electric or air driven mechanism compresses the pump chamber and forces

the blood through another cannula into the aorta. From the aorta, the blood then circulates throughout the body. Valves, which can be mechanical or tissue, enable unidirectional flow.

Certain VADs are implanted internally, while others are placed outside the body. Some external devices are placed immediately adjacent to the body (paracorporeal), while other external VADs are positioned at a distance from the body (extracorporeal). Between 15% and 20% of assist patients require biventricular support and therefore require a second pump for the right ventricle. For all currently FDA-approved VADs, the power source remains outside the body.

The Thoratec VAD

The Thoratec VAD has been FDA-approved since 1995 and has treated over 1,700 patients worldwide. The Thoratec VAD is a paracorporeal device that remains outside of the body. The product is less invasive than implantable VADs since only the cannulae must be implanted. The paracorporeal nature of the Thoratec VAD has several positive consequences including relatively shorter and less invasive implantation times (approximately two hours) and the ability to

use the device in smaller patients.

A pneumatic power source drives our VAD. It is designed for intermediate duration use of a few weeks to several months though this device has supported numerous patients for six to eighteen months. Offering left, right or biventricular support, the Thoratec VAD is the only biventricular support system approved for use as a bridge to transplant. This characteristic is significant since 15-20% of patients require right-sided ventricular assist. The Thoratec VAD is also the only device approved for both bridge to transplant and recovery following cardiac surgery. We submitted a PMA Supplement in December 2000 for a therapeutic recovery indication, which we expect to receive by the end of 2001. The Thoratec VAD is made with our proprietary biomaterial, Thoralon, which may reduce clotting.

[Illustration showing placement of
left and right ventricular assist devices]

Ambulation with most paracorporeal VADs is possible, but very limited because of the large size of the typical drive console. In order to improve patient mobility, we developed the TLC-II, a small portable driver, which increases portability and ambulation options. The portable driver was recently approved in

the United States for use in off-site excursions and is under investigation for a home discharge indication. The TLC-II has been approved for use in Europe since 1998.

The HeartMate

The HeartMate has been used to treat over 3,000 patients worldwide. There are currently two versions of the HeartMate available on the market with different sources of power. The pneumatic-powered version of the HeartMate, called the HeartMate IP, was approved in the United States in 1994 and was the first FDA-approved cardiac assist device. The electric HeartMate, called the HeartMate VE, received FDA approval in September 1998. Currently, the electric version accounts for over 90% of our total HeartMate sales and we recently introduced a number of enhancements to the HeartMate which have been approved by the FDA. Compared with the Thoratec VAD, the HeartMate is designed for longer duration use of several months to up to two or three years. The HeartMate offers only left ventricular support. While the device is currently approved as a bridge to transplant indication, the REMATCH trial evaluated HeartMate as a potential alternative to maximum drug therapy for patients who are not eligible for a heart transplant.

Patients with a HeartMate do not require anti-coagulation, since the device utilizes proprietary textured surfaces and tissue valves rather than mechanical valves. As a result, we believe that this device has the lowest rate of stroke for patients using ventricular support. The implantable nature of the device enables patient ambulation and home discharge.

[Illustration showing placement of the HeartMate.]

Implantable VAD

We are developing and expect to commercialize the IVAD, which is an implantable version of the Thoratec VAD. The IVAD maintains the same blood flow path, valves and blood pump as the paracorporeal device. The outer covering of the IVAD is made of a titanium alloy, which facilitates implantation. The device is approximately half the size of other implantable VADs and weighs less than

one pound. The device can be implanted in patients ranging in weight from 40 kg to over 100 kg. The small blood pump is implanted in the body and is connected to a small, briefcase size, battery-powered, external control unit. The device can provide left, right, or biventricular support. The IVAD is being

designed as a bridge to transplant and possibly for therapeutic recovery, but not as an alternative to transplant.

In February 2001, we received a conditional IDE approval to commence an IVAD clinical trial. The study will evaluate up to 30 patients in up to 10 centers, which are in the process of obtaining approval. We plan to submit a PMA Supplement in the second half of 2002, and expect approval in the first half of 2003.

HeartMate II and HeartMate III

HeartMate II, the next-generation HeartMate device, is being designed for use in many types of patients and indications, including as an alternative to maximum drug therapy. HeartMate II, is a small implantable device that weighs only 12 ounces and is approximately 1.5 inches wide and 2.5 inches long. The small size of the device is made possible by a continuous axial flow mechanism, as compared with the pulsatile flow of other currently marketed products. The device is also designed to be quieter than currently marketed products. The pump speed can be controlled manually or by a proprietary automatic mode, which regulates pumping activity based on the demands of the body. We believe this will be a competitive advantage since most competitive axial pumps currently in development must be manually adjusted. The anticipated longevity of the device is expected to be five to seven years.

The first HeartMate II was implanted in Israel in 2000 and the first European implant occurred in April 2001. We filed for a U.S. IDE in August, 2001. Our goal is to complete U.S. clinical trials by the end of 2002, with HeartMate II launches anticipated in Europe by year-end 2002 and in the United States by the end of 2003.

In addition, we are developing our third generation HeartMate, the HeartMate III. The HeartMate III is a centrifugal flow pump powered by a magnetic rotor that eliminates wear from touching parts. No bearings are present and the device is completely encased in titanium. HeartMate III maintains both continuous and pulsatile flow capabilities. The anticipated longevity of the device is 10-20 years. To date, preclinical studies have been performed, with the first six-month preclinical studies already completed.

VASCULAR GRAFT PRODUCTS

We are developing small diameter vascular graft products intended initially to address the vascular access and CABG markets. Both products utilize our proprietary Thoralon biomaterial, and are protected by several patents covering material, graft design and manufacturing processes. We believe that our vascular grafts are highly compliant, have excellent handling and suturing properties and have the "feel" of a natural blood vessel. Our manufacturing process creates a structure in which the three different layers in the graft wall have different properties, which make the graft closely resemble natural blood vessels. The inner textured layer is designed for contact with blood and provides improved resistance to blood clots. The solid middle layer gives the graft its strength and self-sealing properties. The outer textured layer is designed to promote tissue ingrowth to enhance graft stability.

Aria Coronary Artery Bypass Graft

We have developed a small diameter graft for use in coronary artery bypass surgery patients who have too few or no suitable vessels of their own. The potential for improved long-term patency in small diameter grafts is the most unique aspect of the Aria. We believe that to date no other suitable small diameter graft has been developed which will remain patent over long periods of time when used in this critical application.

We received FDA approval for a Phase I IDE study of the Aria graft in May 2000. This study was designed to evaluate the Aria graft in patients with inadequate autologous vessels to complete revascularization. In Phase I of the study 19 patients were enrolled at six institutions. In September 2001,

the Phase I results were submitted to the FDA and we requested approval to begin the pivotal Phase II study involving an additional 91 patients and 20 institutions.

Vectra Vascular Access Graft

The Vectra vascular access graft was approved for sale in the United States in December 2000 and in Europe in January 1998. It is designed for use as a shunt between an artery and a vein, primarily to provide access to the bloodstream for renal hemodialysis patients requiring frequent needle punctures during treatment. Other currently available vascular access grafts are commonly made out of ePTFE, which can lose integrity after repeated punctures and require a three to six week healing period between implantation and the initiation of dialysis treatment. We believe that the Vectra may provide significant advantages over existing synthetic vascular access grafts that may encourage its use by surgeons who are currently using natural vessels for vascular access. We currently sell Vectra in the United States through the Impra division of C.R. Bard Corporation and internationally through distributors.

BLOOD COAGULATION TESTING AND SKIN INCISION DEVICES

Through our wholly owned subsidiary, International Technidyne Corporation, we manufacture and supply whole blood coagulation testing equipment and related disposables, as well as premium-quality, single-use skin incision devices.

Our whole-blood coagulation testing equipment product lines offer systems for bedside anticoagulation management, coagulation screening, and transfusion management. Each analyzes small blood samples, then processes and quickly displays comprehensive patient homeostasis information. Blood management of this type is essential for cardiopulmonary bypass surgery and angioplasty. HEMOCHRON models are designed for use in a clinical setting at the patient's bedside. They are lightweight, battery-operated, portable, and some provide data-management features.

The Protime Microcoagulation System is designed to allow testing for patients who take the blood-thinning drug Warfarin (Coumadin). The system consists of a hand-held instrument, a five-channel cuvette, and a finger incision device. These tests are performed in a doctor's office, clinic, or by the patients at home.

We also manufacture a family of single-use skin incision devices for drawing blood from adults, children, and infants. Each employs a patented skin incision technology to provide a standardized surgical incision.

SALES AND MARKETING

We operate in the following business segments: circulatory support products, graft products, and blood coagulation testing and skin incision products.

CIRCULATORY SUPPORT PRODUCTS

The potential customers for our circulatory support products are hospitals that perform open heart surgery procedures and heart transplants. We estimate that 140 of the approximately 900 hospitals in the United States that perform open-heart surgery also perform heart transplants. We actively are marketing to these 140 heart transplant hospitals and large cardiac surgery centers in addition to 110 heart transplant hospitals in Europe.

We have recruited and trained a direct sales force that, as of September 29, 2001, was comprised of 18 experienced cardiovascular sales specialists to sell our circulatory support systems in the United States, Canada, France, Germany, Spain, United Kingdom, Austria, Switzerland, Netherlands, Portugal and South Africa.

The sales effort is complemented by 10 direct clinical specialists that conduct clinical educational seminars, assist with a new open-heart center's first VAD implant and resolve clinical questions or issues.

We also partner with universities, experienced clinicians and opinion leaders to assist with expanding clinical educational needs. The sales team focuses on cardiac surgeons that perform heart transplantation and transplant surgeons, perfusionists and the transplant nursing staff. In addition to our direct selling effort, we have established a network of international distributors who cover those markets that represent the majority of ventricular assist device potential. We employ sales and marketing tactics commonly found within the cardiovascular device market such as direct mail, clinical education seminars, symposia, equipment purchase and lease programs and journal advertisement. We have also assembled a Medical Advisory Board consisting of opinion leaders who provide clinical input and direction on product development, marketing and market issues.

Hospitals or other medical institutions that acquire a VAD system generally purchase VAD pumps, related disposables and training and purchase or rent two of the associated pump drivers (to ensure that a backup driver is available). The time from the initial contact with the cardiac surgeon until purchase is generally between nine and eighteen months, due to the expense of the product and common hospital capital equipment acquisition procedures. Upon receipt of a purchase order, we will usually ship the products within thirty days.

The introduction of a new system requires training of the appropriate personnel. We provide initial training for the surgical and clinical support teams when a center purchases and takes delivery of one of our VAD products. As a follow-up to the initial training, we provide clinical support at the first implant whenever possible. We also provide 24-hour access to clinically trained personnel. Our sales force also assists customers with obtaining reimbursement from third-party payors.

VASCULAR GRAFT PRODUCTS

We market the Vectra through our distributor in Japan and through Impra in the United States, and we intend to market the Aria CABG device through our direct sales force in the United States and Europe and potentially through distributors in other international markets.

The Aria is being developed as a preferable clinical option for patients who lack suitable native vessels. We believe that more clinician education will be required for the Aria graft in terms of patient indications, product use, and product capabilities. We may accomplish this education by sponsoring educational programs, video educational tools and scientific lecture programs. We also anticipate that we may need a larger domestic sales force structure to effectively market the Aria graft.

BLOOD COAGULATION TESTING AND SKIN INCISION DEVICES

International Technidyne maintains a direct sales staff of 31 in the United States who sell to hospitals as well as to third party dealers and distributors including Allegiance Healthcare. Outside of the United States, International Technidyne has two salespeople selling principally to third-party dealers.

MANUFACTURING AND FACILITIES

We manufacture our products at the following facilities:

- The Thoratec VAD systems are manufactured at our 62,000 square foot leased facility in Pleasanton, California. This facility has been inspected, approved and licensed by the FDA and the State of California Department of Health Services, Food and Drug Section for the manufacture of medical devices and has received the International Standards Organization (ISO) 9001 certification. Our manufacturing processes for the Thoratec VAD system consist of the assembly of standard and custom component parts, including blood-contacting components fabricated from our proprietary biomaterials, and the testing of completed products. We rely on single sources of supply for several components of the Thoratec VAD system. We are aware of alternative suppliers for all single-sourced items other than the Thoratec VAD mechanical valves, which have been supplied by Arrow International Inc.

- We lease approximately 11,000 square feet of research and development facilities in Rancho Cordova, California pursuant to a lease expiring in 2002.

- We lease approximately 12,000 square feet of office space in Chelmsford, Massachusetts pursuant to a lease expiring in January 2002.

- HeartMate devices are manufactured at a 34,000 square foot sub-leased facility in Woburn, Massachusetts. We are in the process of moving portions of this facility to Pleasanton, California and expect the move to be completed by the end of 2002. We will continue operating marketing, research and development and administrative functions at the Woburn facility.

- Blood coagulation testing and skin incision devices are manufactured at a 66,000 square feet owned facility and a 24,000 square foot leased facility, each in Edison, New Jersey.

We believe our facilities will be sufficient to meet our needs for at least the next year and that additional space will be available at a reasonable price to satisfy space needs thereafter.

PATENTS AND PROPRIETARY RIGHTS

We seek to patent certain aspects of our technology. We hold, or have exclusive rights to, several U.S. patents. Except for the patents mentioned

below, our VAD systems are not protected by any patents other than one patent pertaining to the TLC-II. We do not believe that this lack of patent protection will have a material adverse effect on our ability to sell our VAD systems because of the lengthy regulatory period required to obtain approval of a ventricular assist device. We are not aware of any ventricular assist devices that are based on our product design currently approved by the FDA or undergoing clinical trials. Several patents cover our proprietary biomaterials technology, some of which were sold to The Goldschmidt AG, a German chemical manufacturer, in 1989, but we have retained worldwide, royalty-free, exclusive rights to these patents for most medical applications. Our vascular graft products are covered by manufacturing process patents.

We hold, or have exclusive rights to, several international patents, including several biomaterial patents licensed from Goldschmidt. In August 1998, we obtained an exclusive license to incorporate technology developed by Sulzer Electronics Ltd. into the HeartMate III. HeartMate III is a miniature centrifugal pump featuring a magnetically controlled system that has been developed by Levitronix GmbH. In December 2000, we were informed by Sulzer Electronics that Sulzer had sold all of their business in the bearingless motor and magnetic bearing fields to Levitronix and had assigned the agreements between Sulzer and us to Levitronix.

The validity of any of our patents may be challenged by others, and we could encounter legal and financial difficulties in enforcing our patent rights against alleged infringements. In addition, others could develop technologies or obtain patents which would render our patents obsolete. Although we do not believe patents are the sole determinant in the commercial success of our products, the loss of a significant percentage of our patents or the patents relating to our graft products could seriously harm our business.

We have developed technical knowledge, which although non-patentable, we consider to be significant in enabling us to compete. However, the proprietary nature of such knowledge may be difficult to protect. We have entered into an agreement with each key employee prohibiting such employee from disclosing any confidential information or trade secrets. In addition, these agreements provide that any inventions or discoveries relating to our business by these individuals will be assigned to us and become our sole property.

Claims by competitors and other third parties that our products allegedly infringe the patent rights of others could seriously harm our business. The medical device industry is characterized by frequent and substantial intellectual property litigation. The cardiovascular device market is characterized by extensive patent and other intellectual property claims. Intellectual property litigation is complex and expensive and the outcome of this litigation is difficult to predict. Any future litigation, regardless of outcome, could result in substantial expense and significant diversion of the efforts of our technical and management

personnel. An adverse determination in any such proceeding could subject us to significant liabilities or require us to seek licenses from third parties or pay royalties that may be substantial. Furthermore, we cannot assure you that necessary licenses would be available on satisfactory terms, or at all. Accordingly, an adverse determination in a judicial or administrative proceeding or failure to obtain necessary licenses could prevent us from manufacturing or selling certain of our products, any of which could seriously harm our business.

We have received correspondence from a third party alleging that the textured surface of our HeartMate housing infringes certain patent rights of such third party. In general, an owner of intellectual property can prevent

others from using such property without a license and is entitled to damages for unauthorized usage. We have investigated the bases of the allegation and we believe that we have meritorious defenses. Given the inherent uncertainties in dispute resolution, however, if we were sued and the outcome was unfavorable, our results of operations or financial condition could be seriously harmed.

COMPETITION

Principal competitors of our VAD systems include:

- World Heart Corporation, which manufactures and markets the Novacor implantable left ventricular assist device approved only for bridge to heart transplant in the United States; and

- ABIOMED, Inc., which manufactures and markets the BVS 5000 biventricular assist device approved only for temporary circulatory support of patients in post-heart surgery shock and other recovery indications in the United States.

We believe that the principal competitive factors in the circulatory support market are patient outcomes, product performance, size and portability, quality, cost-effectiveness and customer service. We believe that our principal competitive advantages are:

- our ability to provide left, right or biventricular support;

- our ability to provide short-term or long-term circulatory support;

- the lowest known rate of stroke for patients using ventricular support;

- our ability to provide implantable or paracorporeal VAD placement;

- our ability to provide support in the hospital or in the home;

- our ability to provide support to a greater range of patients as a result of the smaller size and placement of the paracorporeal system outside the body;

- the greater range of cannulation options available;

- the quality of our biomaterials;

- the availability and quality of service and field support; and

- our ability to offer numerous products from one company.

Although we believe that these attributes of our VAD systems offer certain advantages over existing ventricular assist devices, we expect our current competitors to defend their market positions vigorously.

Our principal competitors in the vascular access graft market are W.L. Gore, Inc., C.R. Bard and Boston Scientific Corporation, who manufacture and market ePTFE grafts worldwide. Smaller competitors include CardioTech International, Inc., which manufactures and markets a polyurethane graft that is available for sale outside of the United States. Finally, Possis Medical, Inc. manufactures a self-sealing silicone rubber graft marketed with limited indications in the United States through Horizon Medical Products, Inc.

International Technidyne's principal competitor for the HEMOCHRON coagulation monitoring instruments, used in the operating room and in cardiac catheterization, is the HemoTec division of

Medtronic, Inc. Roche Holding AG competes with the ProTime product with a blood coagulation monitor that is marketed to clinics and also is used for patient self-testing. There are also several new competitors that have recently entered the blood coagulation monitoring market. Our wholly-owned subsidiary International Technidyne's products compete primarily on the basis of reputation, utility, and price.

International Technidyne's skin incision devices compete with products offered by a number of companies, including Organon Teknika B.V.; Becton, Dickinson and Company; and Owen-Mumford Ltd. The skin incision devices compete primarily on the basis of safety, quality and reputation.

GOVERNMENT REGULATIONS

Regulation by governmental authorities in the United States and foreign countries is a significant factor in the manufacture and marketing of our current and future products and in our ongoing product research and development activities. All of our proposed products will require regulatory approval prior to commercialization. In particular, medical devices are subject to rigorous preclinical testing as a condition of approval by the FDA and by similar authorities in foreign countries.

U.S. REGULATIONS

In the United States, the FDA regulates the design, manufacture, distribution and promotion of medical devices pursuant to the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder (the "FDA Act and Regulations"). Our VAD systems, blood coagulation testing devices, skin incision devices, and Aria and Vectra graft products are regulated as medical devices. To obtain FDA approval to market medical devices similar to those under development, the FDA requires proof of safety and efficacy in human clinical trials performed under an IDE. An IDE application must contain preclinical test data demonstrating the safety of the product for human investigational use, information on manufacturing processes and procedures, proposed clinical protocols and other information. If the IDE application is accepted, human clinical trials may begin. The trials must be conducted in compliance with FDA regulations and with the approval of one or more institutional review boards. The results obtained from these trials, if satisfactory, are accumulated and submitted to the FDA in support of either a PMA application or a 510(k) premarket notification. Premarket approval from the FDA is required before commercial distribution of devices similar to those under development by us is permitted in the United States.

The PMA Supplement must be supported by extensive data, including preclinical and human clinical data, to prove the safety and efficacy of the device. By regulation, the FDA has 180 days to review a PMA application and during that time an advisory committee may evaluate the application and provide recommendations to the FDA. While the FDA has approved PMA applications within the allotted time period, reviews more often occur over a significantly protracted period, usually 18 to 36 months, and a number of devices have never been cleared for marketing. This is a lengthy and expensive process and there can be no assurance that such FDA approval will be obtained.

Under the FDA's requirements, if a manufacturer can establish that a newly developed device is "substantially equivalent" to a legally marketed predicate device, the manufacturer may seek marketing clearance from the FDA to market the device by filing a 510(k) premarket notification with the FDA. This is the process that is used to gain FDA market clearance for most of the International Technidyne products including HEMOCHRON and ProTime. The 510(k) premarket notification must be supported by data establishing the claim of substantial

equivalence to the satisfaction of the FDA. The process of obtaining a 510(k) clearance typically can take several months to a year or longer. If substantial equivalence cannot be established, or if the FDA determines that the device requires a more rigorous review, the FDA will require that the manufacturer submit a PMA application that must be approved by the FDA prior to marketing the device in the United States.

Both a 510(k) and a PMA, if approved, may include significant limitations on the indicated uses for which a product may be marketed. FDA enforcement policy prohibits the promotion of approved medical

devices for unapproved uses. In addition, product approvals can be withdrawn for failure to comply with regulatory requirements or the occurrence of unforeseen problems following initial marketing.

The approval process for each of our products is expensive and time consuming and we cannot assure you that any regulatory agency will grant its approval. Our inability to obtain, or delays in obtaining, such approval would adversely affect our ability to commence marketing our products. We cannot assure you that we will have sufficient resources to complete the required testing and regulatory review processes. Furthermore, we are unable to predict the extent of adverse governmental regulation which might arise from future U.S. or foreign legislative or administrative action.

In addition, any products distributed pursuant to the above authorizations are subject to pervasive and continuing regulation by the FDA. Products must be manufactured in registered establishments and must be manufactured in accordance with cGMP regulations and adverse events must be reported to the FDA. Labeling and promotional activities are subject to scrutiny by the FDA and, in certain instances, by the Federal Trade Commission. The failure to comply with the FDA's regulations can result in enforcement action, including seizure, injunction, prosecution, civil penalties, recall and suspension of FDA approval. The export of devices is also subject to regulation in certain instances.

We are also subject to regulation by the California Food and Drug Branch, which may inspect us and enforce regulations. Failure to comply with applicable California regulations may result in seizures, injunctions or other types of enforcement actions.

INTERNATIONAL REGULATIONS

We are also subject to regulation in each of the foreign countries in which we sell products with regard to product standards, packaging requirements, labeling requirements, import restrictions, tariff regulations, duties and tax requirements. Many of the regulations applicable to our products in such countries are similar to those of the FDA. The national health or social security organizations of certain countries require our products to be qualified before they can be marketed in those countries.

In order to be positioned for access to European and other international markets, we sought and obtained certification under the ISO 9000 Series of Standards. ISO 9000 is a set of integrated requirements, which when implemented, form the foundation and framework for an effective quality management system. These standards were developed and published by the ISO, a worldwide federation of national bodies, founded in Geneva, Switzerland in 1946. ISO has over 92 member countries. ISO certification is widely regarded as essential to enter Western European markets. We obtained certification and were registered as an ISO 9002 compliant company in January 1995. Commencing in mid-1998, all companies are required to obtain CE Marks for medical devices sold or

distributed in the European Community. The CE Mark is an international symbol of quality. With it, medical devices can be distributed within the European Community, which is comprised of 15 European countries representing a population of over 360 million people. A prerequisite for obtaining authority to CE Mark products is to achieve full quality system certification in accordance with ISO 9001 and EN 46001. These are quality standards that cover design, production, installation and servicing of medical devices. We have our ISO 9001 and EN 46001 certification and authority to CE Mark all VAD systems including the HeartMate, blood coagulation testing and skin incision devices, and the Vectra graft. We are also certified to be in compliance with the requirements of the European Medical Device Directive, another prerequisite for applying the CE Mark.

OTHER REGULATIONS

We are also subject to various federal, state and local laws and regulations relating to such matters as safe working conditions, laboratory and manufacturing practices and the use, handling and disposal of hazardous or potentially hazardous substances used in connection with our research and development work. Specifically, the manufacture of our biomaterials is subject to compliance with federal environmental regulations and by various state and local agencies. Although we believe we are in compliance with these

laws and regulations in all material respects, we cannot assure you that we will not be required to incur significant costs to comply with environmental laws or regulations in the future.

THIRD PARTY REIMBURSEMENT AND COST CONTAINMENT

Our products are purchased primarily by hospitals and other users, which then bill various third party payors for the services provided to the patients. These payors, which include Medicare, Medicaid, private health insurance companies and managed care organizations, reimburse part or all of the costs and fees associated with these devices and the procedures performed with these devices.

Third party payors are increasingly challenging the prices charged for medical products and services and may deny reimbursement if they determine that a device was not used in accordance with cost-effective treatment methods as determined by the payor, was experimental or was used for an unapproved application. To date, some private insurers and Medicare and Medicaid have determined to reimburse the costs of our VAD systems. Changes in reimbursement, policies and practices of third party payors could seriously harm sales of our products.

EMPLOYEES

As of September 29, 2001, we had 667 full-time employees 301 of whom worked in manufacturing, 94 in engineering, 87 in quality control and regulatory affairs, 108 in marketing and sales support, 35 in administration and finance, and 42 in other support functions, including human resources, management information, purchasing and facilities. None of our employees is covered by a collective bargaining agreement. We consider relations with our employees to be good.

LITIGATION

We are not a party to any material legal proceedings.

MANAGEMENT

DIRECTORS AND OFFICERS

Our directors and officers at September 29, 2001 were as follows:

NAME	AGE	POSITION
J. Donald Hill	64	Director and Chairman of the Board
D. Keith Grossman	41	Director, President and Chief Executive Officer
Howard E. Chase	65	Director
J. Daniel Cole	55	Director
William M. Hitchcock	62	Director
George W. Holbrook, Jr.	70	Director
Daniel M. Mulvena	53	Director
Theo Melas-Kyriazi	42	Director
M. Wayne Boylston	43	Senior Vice President, Chief Financial Officer and Secretary
David J. Farrar	53	Vice President -- Research and Development
Bradley D. Goskowicz	45	Vice President -- Sales and Marketing
Jeffrey C. Mack	38	Vice President -- Finance and Corporate Controller
Donald A. Middlebrook	50	Vice President -- Regulatory Affairs/Quality Assuran
Joseph G. Sharpe	42	Vice President -- Operations
Beth A. Taylor	39	Vice President -- Human Resources

J. DONALD HILL, M.D., CHAIRMAN OF THE BOARD OF DIRECTORS, has been a director of our company since our inception. In January 1995, Dr. Hill became Chairman of the Board of Directors. Dr. Hill is the director of the Heart Failure, Transplant, Artificial Heart and Circulatory Support Program at California Pacific Medical Center in San Francisco where he has been a practicing cardiovascular surgeon since 1966.

D. KEITH GROSSMAN, PRESIDENT, CHIEF EXECUTIVE OFFICER AND DIRECTOR, joined our company as President and Chief Executive Officer in January 1996. He was elected to the Board of Directors in February 1996. Prior to joining us, Mr. Grossman was a Division President of Major Pharmaceuticals, Inc., from June 1992 to September 1995, at which time it was sold. From July 1988 to June 1992, Mr. Grossman served as the Vice President of Sales and Marketing for Calcitek, Inc., a manufacturer of implantable medical devices, and division of SulzerMedica formerly Intermedics, Inc. Prior to 1988, Mr. Grossman held various other sales and marketing management positions within the McGaw Laboratories Division of American Hospital Supply Corporation.

HOWARD E. CHASE, DIRECTOR became a director of our company in November 1986. Mr. Chase has been President and CEO of Carret Holdings, Inc. (formerly Matrix Global Investments, Inc.) since June 1999. Mr. Chase served as President and CEO of Trident Rowan Group, Inc. ("TRGI") from September 1995 to March 1998 and Chairman of the Board of TRGI from March 1998 to December 1999. From 1984 to August 1995, Mr. Chase was a partner in the law firm of Morrison Cohen Singer & Weinstein, LLP in New York City. He acted as an advisor and as a special counsel to our company from 1979 to 1995. Mr. Chase also serves as a member of the board of directors of Trident Rowan Group, Inc. and Centerpoint Corporation (formerly Moto Guzzi Corporation).

J. DANIEL COLE, DIRECTOR became a director of our company in June 1997. Mr. Cole has been a general partner of the Spray Venture Fund of Boston since March

1997. Mr. Cole was President and Chief Operating Officer of SciMed Life Systems Corporation from March 1993 to March 1995, and Senior Vice President and Group President of Boston Scientific Corporation's vascular business from March 1995 to March 1997. He has also held a number of senior executive positions at Baxter Healthcare Corporation,

including President of its Edwards Less Invasive Surgery Division and its Critical Care Division. Mr. Cole also serves as a member of the board of directors of numerous private companies.

WILLIAM M. HITCHCOCK, DIRECTOR became a director of our company in September 1996. In December 1996, Mr. Hitchcock became President and director of Avalon Financial, Inc. From May 1992 to December 1996, Mr. Hitchcock was President of Plains Resources International Inc., a wholly owned subsidiary of Plains Resources Inc. Mr. Hitchcock also serves as a member of the board of directors of Plains Resources Inc., Luna Imaging, Inc. and Protalex, Inc.

GEORGE W. HOLBROOK, JR., DIRECTOR became a director of our company in June 1995. Since 1984 Mr. Holbrook has been the Managing Partner of Bradley Resources Company, a private investment partnership. Mr. Holbrook is also a director and trustee of Merrill Lynch Institutional Fund, Inc., and several associated funds, in addition to being a director of Autogenics, Ltd., Radiomed Corporation, Soilzone, and Radius Medical Technologies, Inc.

DANIEL M. MULVENA, DIRECTOR became a director of our company in May 1997. Mr. Mulvena is the founder and owner of Commodore Associates, a consulting company. Mr. Mulvena was Group Vice President of the Cardiac/Cardiology Division and a member of the operating committee for Boston Scientific Corporation from February 1992 to May 1995. Prior to that, he was the President and Chief Executive Officer and Chairman of Lithox Systems, Inc. Prior to that, Mr. Mulvena held a number of executive positions, including President of the Implants Division and President of the Cardiosurgery Division, at C.R. Bard, Inc. Mr. Mulvena also serves as a member of the board of directors of Echocath, Inc., Magna-Lab Inc., Zoll Medical Corporation and Cambridge Heart, Inc.

THEO MELAS-KYRIAZI, DIRECTOR became a director of our company in February 2001. He has been the Chief Financial Officer of Thermo Electron Corporation since January 1, 1999. He joined Thermo Electron in 1986 as Assistant Treasurer, and became Treasurer in 1988. He was named President and Chief Executive Officer of ThermoSpectra Corporation in 1994, a position he held until becoming Vice President of Corporate Strategy of Thermo Electron in 1998.

M. WAYNE BOYLSTON, SENIOR VICE PRESIDENT, CHIEF FINANCIAL OFFICER AND SECRETARY, became our Senior Vice President, Chief Financial Officer and Secretary in August 2001. Prior to joining us, Mr. Boylston was Chief Financial Officer at Flashcom, Inc., a provider of broadband communications services. Flashcom filed for bankruptcy protection in December 2000. From July 1998 until March 2000, Mr. Boylston served as Executive Vice President, Chief Financial Officer, Treasurer and Assistant Secretary of iXL Enterprises, Inc., an Internet consulting service provider. From 1995 until 1998, Mr. Boylston served as Vice President -- Finance, Chief Financial Officer and Treasurer of Healthdyne Technologies, Inc., a medical device manufacturer. Prior to 1995, Mr. Boylston held a variety of financial management positions with Healthdyne, Inc., a diversified healthcare products and services company. Mr. Boylston is a Certified Public Accountant.

DAVID J. FARRAR, PH.D., VICE PRESIDENT -- RESEARCH AND DEVELOPMENT, joined our company as Program Manager of our circulatory support products in January 1980 and became Vice President -- Circulatory Support Products in 1988, and Vice

President -- Research & Development in 1996. In addition, Dr. Farrar has a research appointment in the Department of Cardiac Surgery at the California Pacific Medical Center of San Francisco. Dr. Farrar has over 20 years of research experience in the cardiovascular and medical device industry.

BRADLEY D. GOSKOWICZ, VICE PRESIDENT -- SALES AND MARKETING, joined our company as Vice President, Sales and Marketing in January 2001. Prior to joining our company, Mr. Goskowicz was Director of Marketing in the Cardiac Surgery Division of Medtronic, Inc. where he was responsible for directing, developing and implementing marketing strategies for a broad line of cardiovascular surgery products worldwide. He joined Medtronic in March 1999, as part of Medtronic's acquisition of Avecor Cardiovascular, and was one of the original Directors when Avecor Cardiovascular was formed in 1991. Before assuming the role of Director of Marketing, he held the position of Director of Sales. Prior to 1991

Mr. Goskowicz held various sales and marketing positions with Bio-Medicus, Inc., Medtronic, Inc. and Johnson & Johnson.

JEFFREY C. MACK, VICE PRESIDENT -- FINANCE AND CORPORATE CONTROLLER, joined our company as Controller in 1996. He became Director of Finance and Corporate Controller in September 1999 and Vice President of Finance in September 2000. Prior to joining our company, he served as Director of Finance and Corporate Controller for The North Face, a designer and manufacturer of outdoor apparel and equipment. He also held various other financial and operational positions with Kenetech Corporation, a manufacturer and operator of utility grade wind turbines, and Deloitte & Touche, LLP. Mr. Mack is a Certified Public Accountant.

DONALD A. MIDDLEBROOK, VICE PRESIDENT -- REGULATORY AFFAIRS/QUALITY ASSURANCE, joined our company as Vice President -- Regulatory Affairs/Quality Assurance in September 1996. Before joining our company, he held the position of Senior Director, Global Regulatory Affairs and Assurance for Chiron Vision Corporation, a manufacturer of implantable ophthalmic devices and surgical equipment. Prior to that, Mr. Middlebrook spent fifteen years with Baxter International in a number of positions, including Vice President of Regulatory Affairs and Quality Assurance for the CardioVascular Group, a producer of a wide range of cardiopulmonary, critical care, vascular and cardiovascular products.

JOSEPH G. SHARPE, VICE PRESIDENT -- OPERATIONS, joined our company as Vice President -- Operations in September 1997. Prior to joining us, Mr. Sharpe was Director of Operations for the IV Systems Division of Baxter International, Inc. from 1992 to September 1997. Prior to that, Mr. Sharpe held a number of other positions at Baxter International, Inc. including Director of Engineering of the Pharmaseal Division, and Honeywell Information Systems.

BETH A. TAYLOR, VICE PRESIDENT -- HUMAN RESOURCES, joined our company as Director of Human Resources in November 1999 and became Vice President of Human Resources in February 2001. Prior to joining our company, Ms. Taylor served as Director of Human Resources for CCI/Triad. She has also held various other human resource positions such as Corporate Employee Development Manager with Valent U.S.A. Corporation, and as Director of Human Resources with Automatic Data Processing, Inc.

PRINCIPAL AND SELLING SHAREHOLDERS

The following table sets forth certain information regarding the beneficial ownership of our common stock as of September 29, 2001:

- by each of our directors;

- by each of our named executive officers;

- by all of our directors and executive officers as a group;

- by each person who is known by us to own beneficially more than 5% of our common stock; and

- by each selling shareholder.

Percentage ownership for each shareholder is based on 55,342,262 shares of common stock outstanding at September 29, 2001, together with options owned by such shareholder. Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission, and includes voting and investment power with respect to the shares.

Beneficial ownership also includes shares of stock subject to options and debentures exercisable or convertible within 60 days of September 29, 2001. Shares of common stock subject to outstanding options or convertible debentures are deemed outstanding for computing the percentage of ownership of the person holding such options or convertible debentures, but are not deemed outstanding for computing the percentage ownership of any other person.

Except pursuant to applicable community property laws or as indicated in the footnotes to this table, to our knowledge, each shareholder identified in the table possesses sole voting and investment power with respect to all shares of common stock shown as beneficially owned by such shareholder.

	OWNERSHIP BEFORE OFFERING			OWNERSHIP AFTER	
NAME AND ADDRESS(1)	NUMBER OF SHARES BENEFICIALLY OWNED	PERCENT OF SHARES BENEFICIALLY OWNED	NUMBER OF SHARES OFFERED	NUMBER OF SHARES BENEFICIALLY OWNED	B
Thermo Electron Corporation..... 81 Wyman Street Waltham, MA 02454(2)	14,600,416	26.4%	5,825,000	8,775,416	
Peter R. Kellogg(3).....	3,580,600	6.5	--	3,580,600	
Gambro, Inc..... (formerly COBE Laboratories, Inc.)	3,133,077	5.7	--	3,133,077	
J. Donald Hill(4).....	1,359,870	2.5	30,000	1,329,870	
D. Keith Grossman(5).....	502,833	*	--	502,833	
George W. Holbrook, Jr.(6).....	422,642	*	50,000	372,642	
Bradley Resources Company(6).....	383,059	*	50,000	333,059	
James McGoogan(6).....	383,059	*	50,000	333,059	
William M. Hitchcock(7).....	416,623	*	--	416,623	
J. Daniel Cole(8).....	81,250	*	40,000	41,250	
Howard E. Chase(9).....	72,235	*	--	72,235	
Daniel M. Mulvena(10).....	41,250	*	--	41,250	
Theo Melas-Kyriazi(11).....	19,660	*	--	19,660	
M. Wayne Boylston.....	--	*	--	--	
Directors and Executive Officers as a Group (9 persons)(12).....	2,916,363	5.2%	120,000	2,796,363	

---

* Less than one percent

(1) Except as otherwise indicated, the address of the persons above is our address appearing on page 3 of this prospectus.

(2) Includes 39,872 shares issuable upon conversion of debentures convertible within 60 days of September 29, 2001.

(3) Figures as reported on Form 13-G filed on March 9, 2001.

(4) Includes 108,472 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(5) Includes 444,325 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(6) Bradley Resources Company is an investment partnership which owns 383,059 shares. George W. Holbrook, Jr., a director of our company, is a general partner of Bradley Resources Company and is deemed to share beneficial ownership of such shares with Mr. James McGoogan, a general partner of Bradley Resources Company. Includes, in Mr. Holbrook's number only, 39,583 shares issuable upon exercise of options within 60 days of September 29, 2001.

(7) Includes 39,583 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(8) Includes 41,250 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(9) Includes 67,902 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(10) Includes 41,250 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(11) Includes 16,700 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

(12) Includes 799,065 shares issuable upon exercise of options exercisable within 60 days of September 29, 2001.

RELATIONSHIP WITH THERMO ELECTRON

Other than its ownership of our securities pursuant to, and other rights arising under, the following agreements, Thermo Electron did not have 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 approximately 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, and are not freely transferable. Under a registration rights agreement, dated October 3, 2000, we agreed to register for resale the following number of shares issued to Thermo Electron in the merger:

- 4,828,240 shares (approximately 25% of the shares issued to Thermo Electron in the merger with TCA) on or before June 14, 2001,

- an additional 4,828,240 shares before February 14, 2002, and

- the remainder of the shares before August 14, 2002.

In addition, we granted Thermo Electron piggy-back registration rights in the event that we file a registration statement under the Securities Act. We and Thermo Electron have agreed that if we complete the offering of at least 4,828,240 shares covered by this prospectus, we will not be required to seek the registration of the shares that we were required to register on or before February 14, 2002 or up to 1 million shares required to be registered on or before August 14, 2002. In the event that the underwriters exercise the overallotment option with respect to shares held by Thermo Electron, the number of shares that we will be required to register on or before August 14, 2002 will be reduced by such number of shares.

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 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.

We have agreed to modify the shareholder agreement to provide for the sale of the shares by Thermo Electron under this prospectus.

CONVERTIBLE DEBENTURES

TCA had subordinated convertible debentures 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. Thermo Electron continues to guarantee the 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.

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.

PROVISIONS OF ARTICLES OF INCORPORATION AFFECTING SHAREHOLDERS

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.

UNDERWRITING

GENERAL

Under the underwriting agreement, which is filed as an exhibit to the registration statement relating to this prospectus, each of the underwriters named below has agreed to purchase from us and the selling shareholders the number of shares of common stock shown opposite its name below:

UNDERWRITERS	NUMBER OF SHARES

Lehman Brothers Inc.	
Merrill Lynch, Pierce, Fenner & Smith Incorporated	
J.P. Morgan Securities Inc.	
Bear, Stearns & Co. Inc.	
Adams, Harkness & Hill, Inc.	
Fidelity Capital Markets, a division of National Financial Services LLC	
Total	8,000,000

The underwriting agreement provides that the underwriters' obligations to purchase shares of common stock depend on the satisfaction of the conditions contained in the underwriting agreement, including:

- the obligation to purchase all of the shares of common stock offered hereby, if any of the shares are purchased;
- the representations and warranties made by us and the selling shareholders to the underwriters are true;
- there is no material change in the financial markets; and
- we and the selling shareholders deliver customary closing documents to the underwriters.

OVER-ALLOTMENT OPTION

We and the selling shareholders have granted to the underwriters an option to purchase up to an aggregate of 1,200,000 additional shares of common stock, exercisable to cover over-allotments, if any, at the public offering price less the underwriting discount shown on the cover page of this prospectus. The underwriters may exercise this option at any time, and from time to time, until 30 days after the date of the underwriting agreement. To the extent the underwriters exercise this option, each underwriter will be committed, so long as the conditions of the underwriting agreement are satisfied, to purchase a number of additional shares of common stock proportionate to that underwriter's initial commitment as indicated in the preceding table, and we or the selling shareholders will be obligated to sell the additional shares of common stock to the underwriters.

COMMISSIONS AND EXPENSES

The following table summarizes the underwriting discount that we and the selling shareholders will pay. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase up to an additional 1,200,000 shares. The underwriting fee is the difference between the public offering price and the amount the underwriters pay to purchase the shares from us and the selling shareholders.

	NO EXERCISE	FULL EXERCISE
Per share		
Total		

The underwriters have advised us that they propose to offer the shares of common stock directly to the public at the public offering price presented on the cover page of this prospectus, and to selected dealers, who may include the underwriters, at the public offering price less a selling concession not in excess of $ per share. The underwriters may allow, and the selected dealers may reallow, a concession not in excess of $ per share to brokers and dealers. After the offering, the underwriters may change the offering price and other selling terms.

We estimate that the total expenses of the offering, excluding underwriting discounts, will be approximately $750,000. We and Thermo Electron have agreed to pay such expenses.

LOCK-UP AGREEMENTS

Our company, directors, executive officers, certain other officers and the selling shareholders have agreed, under lock-up agreements, that, without the prior written consent of Lehman Brothers Inc., we will not, directly or indirectly, offer, sell or dispose of any shares of common stock or any securities which may be converted into or exchanged for shares of common stock for a period of 90 days from the completion of this offering.

INDEMNIFICATION

We and the selling shareholders have agreed to indemnify the underwriters against liabilities relating to the offering, including liabilities under the Securities Act and liabilities arising from breaches of the representations and warranties contained in the underwriting agreement, and to contribute to payments that the underwriters may be required to make for these liabilities.

STABILIZATION, SHORT POSITIONS AND PENALTY BIDS

The underwriters may engage in over-allotment, stabilizing transactions, syndicate covering transactions, and penalty bids or purchases for the purpose of pegging, fixing or maintaining the price of the common stock, in accordance with Regulation M under the Exchange Act of 1934:

- Over-allotment involves sales by the underwriters of shares in excess of the number of shares the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriters is not greater than the number of shares that they may purchase in the over-allotment option. In a naked short position, the number of shares involved is greater than the number of shares in the over-allotment option. The underwriters may close out any short position by either exercising their over-allotment option and/or purchasing shares in the open market.

- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

- Syndicate covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the over-allotment option. If the underwriters sell more shares than could be

covered by the over-allotment option, a naked short position, the position can only be closed out by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

- Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the common stock originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock. As a result, the price of the common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on The Nasdaq National Market or otherwise and, if commenced, may be discontinued at any time.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

PASSIVE MARKET MAKING

In connection with the offering, underwriters and selling group members may engage in passive market making transactions in the common stock on the Nasdaq National Market in accordance with Rule 103 of Regulation M under the Securities Exchange Act of 1934 during the period before the commencement of offers or sales of common stock and extending through the completion of the distribution. A passive market maker must display its bids at a price not in excess of the highest independent bid of the security. However, if all independent bids are lowered below the passive market maker's bid, that bid must be lowered when specified purchase limits are exceeded.

STAMP TAXES

Purchasers of the shares of common stock offered in this prospectus may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

OFFERS AND SALES IN CANADA

This prospectus is not, and under no circumstances is to be construed as, an advertisement or a public offering of shares in Canada or any province or territory thereof. Any offer or sale of shares in Canada will be made only under an exemption from the requirements to file a prospectus supplement or prospectus and an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made.

ELECTRONIC DISTRIBUTION

A prospectus in electronic format may be made available on Internet sites or through other online services maintained by one or more of the underwriters

and/or selling group members participating in this offering, or by their affiliates. In those cases, prospective investors may view offering terms online and, depending upon the particular underwriter or selling group member, prospective investors may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares for sale to online brokerage account holders. Any such allocation for online distributions will be made by the representatives on the same basis as other allocations.

Other than the prospectus in electronic format, information contained in any other web site maintained by an underwriter or selling group member is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been endorsed by us and should not be relied on by investors in deciding whether to purchase any shares of common stock. The underwriters and selling group members are not responsible for information contained in web sites that they do not maintain.

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. Clifford Chance Rogers & Wells LLP, New York, New York, will pass upon certain legal matters in connection with this offering for the underwriters.

EXPERTS

The consolidated financial statements of Thoratec incorporated into this prospectus by reference from Thoratec's Annual Report on Form 10-K for the year ended December 30, 2000, 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.

The consolidated financial statements of TCA incorporated into this prospectus by reference from Thoratec's current report on Form 8-K filed on February 28, 2001 and amended March 30, 2001 and October 24, 2001, have been audited by Arthur Andersen 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.

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) Thoratec's Annual Report on Form 10-K for the fiscal year ended December 30, 2000;

(2) Thoratec's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2001;

(3) Thoratec's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2001; and

(4) TCA's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2000,

(5) The following reports on Form 8-K:

(a) Form 8-K (File No. 033-72502), filed with the SEC on February 28, 2001;

(b) Forms 8-K/A (File No. 033-72502), filed with the SEC on March 30, 2001; and

(c) Form 8-K (File No. 033-72502) filed with the SEC on October 24, 2001.

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

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

LOGO

8,000,000 SHARES

[LOGO]

COMMON STOCK

PROSPECTUS

, 2001

LEHMAN BROTHERS
MERRILL LYNCH & CO.
JPMORGAN
BEAR, STEARNS & CO. INC.
ADAMS, HARKNESS & HILL, INC.
FIDELITY CAPITAL MARKETS

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

SEC Registration Fee	$ 47,495
NASD Filing Fee	19,498
Nasdaq National Market Listing Fee	17,500
Transfer Agent and Registrant Fees	25,000
Accounting Fees and Expenses	130,000
Printing Fees	150,000
Legal Fees and Expenses	165,000
Miscellaneous	195,507
TOTAL	$750,000

These expenses will be paid by us and Thermo Electron.

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Our certificate 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

Exhibits and Index of Exhibits

EXHIBIT NUMBER		EXHIBIT
1.1	--	Form of Underwriting Agreement among the Underwriters named therein, the selling shareholders and us.*
5.1	--	Opinion of Heller Ehrman White & McAuliffe LLP.
10.1	--	Agreement and plan of merger by and among Thoratec Laboratories Corporation (since renamed Thoratec Corporation), Lightning Acquisition Corporation, TCA, Inc, and Thermo Electron Corporation dated October 3, 2000.(1)
10.2	--	Registration Rights Agreement by and between Thoratec Laboratories Corporation (since renamed to Thoratec Corporation) and Thermo Electron Corporation dated October 3, 2000.(1)
10.3	--	Shareholders Agreement by and among Thoratec Laboratories Corporation (since renamed Thoratec Corporation), Thermo Electron Corporation and TCA, Inc. dated October 3, 2001.(1)
23.1	--	Independent Auditors' Consent -- Deloitte & Touche LLP.
23.2	--	Independent Auditors' Consent -- Arthur Andersen LLP.
23.3	--	Consent of Heller Ehrman White & McAuliffe LLP (contained in Exhibit 5.1).
24.1	--	Power of Attorney -- Reference is made to page II-4 hereof.

---

(1) Filed as an Annexure to our Registration Statement on Form S-4 filed with the SEC on December 29, 2000 (Registration No. 333-49120).

* To be filed by amendment.

ITEM 17. UNDERTAKINGS

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 October 23, 2001.

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 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	October 23
/s/ HOWARD E. CHASE Howard E. Chase	Director	October 23
/s/ J. DANIEL COLE J. Daniel Cole	Director	October 23
/s/ J. DONALD HILL J. Donald Hill	Director and Chairman of the Board of Directors	October 23
/s/ WILLIAM M. HITCHCOCK William M. Hitchcock	Director	October 23

SIGNATURE	TITLE	DATE