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HELIX TECHNOLOGY CORP  
Form 10-K  
March 28, 2001

UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
Form 10-K

Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. For the Year Ended December 31, 2000, OR

Transition Report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number 0-6866

HELIX TECHNOLOGY CORPORATION  
(Exact name of registrant as specified in its charter)

Delaware 04-2423640  
(State of Incorporation) (IRS Employer Identification No.)

Mansfield Corporate Center, Nine Hampshire Street, Mansfield, Massachusetts  
02048-9171  
(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: (508) 337-5111

Securities registered pursuant to Section 12(b) of the Act: None

Securities registered pursuant to Section 12(g)  
of the Act: Common Stock, \$1 Par Value  
(Title of Class)

Indicate by checkmark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

YES  NO

Indicate by checkmark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

The aggregate market value of the registrant's common stock held by nonaffiliates of the registrant as of March 13, 2001, (computed by reference to the quoted selling prices of such stock in the over-the-counter market), was \$563,647,457.

The number of shares outstanding of the registrant's Common Stock, \$1 Par Value, as of March 13, 2001, was 22,537,204.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Annual Proxy Statement for the registrant's 2001 Annual

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Meeting of Stockholders to be filed with the SEC in March 2001 are incorporated by reference into Part III, Items 10-12.

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### PART I

#### ITEM 1. BUSINESS

##### GENERAL

HELIX TECHNOLOGY CORPORATION (the "Company" or "Helix"), a Delaware corporation organized in 1967, is a world leader in the development and application of innovative solutions in the field of vacuum technology. The development and delivery of components, total system solutions, and global support of superior value is the singular focus of the men and women of Helix who serve our broad customer base throughout the world.

The global electronic component manufacturing industry is our largest market. Helix is a critical enabling technology provider meeting the demanding requirements of state-of-the-art semiconductor, data storage, and flat panel display manufacturing. One measure of our success and our impact is the fact that today virtually every integrated circuit manufactured in the world is processed in equipment dependent on the performance of Helix vacuum products, systems, and support, placing us at a critical point in the electronics "food chain." Our vacuum instrumentation is also used broadly in the analytical instrument market and our cryogenic systems are facilitating the commercialization of emerging applications for superconducting electronics.

Using our proprietary On-Board technology, a comprehensive package of hardware and software that can integrate both Helix and non-Helix vacuum products, Helix provides (On-Board is a registered trademark of Helix Technology Corporation.):

- \* Original equipment manufacturers design and development support for fully integrated vacuum systems with the flexibility to rapidly implement a full range of process-driven solutions, and
- \* End-user customers performance-enhancing process controls, advanced diagnostics, and communications capabilities to increase system uptime, lower the cost of ownership, and facilitate the move to remote e-diagnostics of critical enabling processes, such as vacuum.

##### VACUUM COMPONENTS AND SYSTEMS AND GLOBAL SUPPORT SERVICES

For over 30 years, unmatched customer responsiveness has been the cornerstone of our business strategy. Helix customers want solutions that incorporate the best technology, deliver the highest performance, perform to specification out of the box, are delivered on time, are priced fairly, and are supported by competent personnel anywhere in the world where they may be used.

For our OEM customers this has meant having the right product, at the right place, at the right time. From the initial platform design stage through their production build process, our customers know they can depend on Helix. Our lean manufacturing process is broadly recognized as a key element in the ability of our OEM customers to keep pace with the unpredictable and ever-changing demands of their own customers. This has never been more evident than over the last 30 months where we increased our sequential production to

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unprecedented levels while maintaining our excellent delivery performance.

For the ultimate end-users of our products, we are considered an essential business partner who both ensures and enhances critical vacuum system availability and performance. Our GUTS (Guaranteed Up Time Support) rapid response system is broadly recognized for delivering unsurpassed service responsiveness anywhere in the world, while our GOLDLink (Global On-Line Diagnostics) capability has made us the leading provider in the emerging market for remote e-diagnostic support services. (GUTS is a registered trademark of Helix Technology Corporation.) (GOLDLink is a registered service mark of Helix Technology Corporation.)

This ability to continuously meet the varying needs of both OEMs and end-users, at any level of business activity, sets us apart from our competitors.

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Vacuum Pumping Components and Systems. The Company's CTI-Cryogenics On-Board Cryopumps and systems continue to be the industry standard for providing high vacuum for both the PVD (physical vapor deposition or "sputtering") and ion implantation markets. We are the supplier of choice to virtually every semiconductor capital equipment OEM and semiconductor end-user. Our On-Board Cryopumps provide clean, reliable, high-speed pumping for critical vacuum process applications, ensuring high product yields and process throughputs. The On-Board system enables central monitoring and control, either in-fab or at remote sites, of every significant function of both individual pumps and entire vacuum networks. Since 1988 we have delivered tens of thousands of our On-Board Cryopumps - making it the best selling pump on the market.

Over the last few years, the Company has introduced its On-Board Waterpumps and TurboPlus products to support the CVD (chemical vapor deposition) and etch processes. (TurboPlus is a registered trademark of Helix Technology Corporation.) On-Board Waterpumps are high-performance vacuum pumps that optimize the performance of CVD and etch systems by increasing water vapor pumping speed by a factor of five or more, providing substantially improved system throughput and better process results. TurboPlus Vacuum Pumps offer the process advantages of throughput pumping from the turbopump and the uptime benefits of high-speed water vapor pumping, integrated into a compact package with a single, easy-to-use interface.

Sales of our CTI-Cryogenics products and related support services represent approximately 85% of consolidated sales. The average selling price for our vacuum pumping systems is approximately \$20,000.

Vacuum Measurement Components and Systems. The Company's Granville-Phillips STABIL-ION and CONVECTRON vacuum measurement components and systems are considered industry standards and are used in the PVD, ion implantation, CVD, and etch processes. (STABIL-ION and CONVECTRON are registered trademarks of Helix Technology Corporation.) The Company's vacuum gauging products are also integrated into analytical instruments, primarily mass spectrometers.

STABIL-ION and CONVECTRON systems are individually calibrated at numerous pressure values resulting in a stable and accurate gauge that does not change calibration with time of use. This stable calibration is essential to starting the production process at the same true pressure on every production run. It also provides improved gauge-to-gauge reproducibility, which is essential for process replication.

Companies depend on our measurement systems to provide repeatable readings, ensuring that processes start at the desired pressure. Non-repeatable gauges can shift over time, causing two different effects:

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\* If the gauge reads lower than the actual pressure, a process can be started when the pressure is too high, possibly causing product defects.

\* If the gauge reads higher than the actual pressure, the system will pump down to a pressure lower than necessary for a process. This is equivalent to system downtime.

Sales of our Granville-Phillips products and related services represent approximately 15% of consolidated sales. The average selling price for our vacuum measurement systems is approximately \$500.

Global Support Services. Our history of providing unparalleled post-sales support began with the introduction of our GUTS rapid response system in the mid-1980's. Our GUTS response system is broadly recognized for delivering unsurpassed responsiveness to problems whenever, wherever they may occur. Every call to our GUTS line is answered by a capable, empowered Helix employee who has the resources to diagnose a customer problem and to guarantee a solution will be in place in 59 minutes or less. If necessary, a part, a pump, a gauge, or a person will be en route to a customer's facility within that 59-minute period to get a system back on-line. Historically we have received approximately 30% to 40% of our revenue from providing global support to our end-user customers.

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To the typical Helix customer, a day, an hour, or even a few minutes of production downtime is simply unacceptable. Given the magnitude of the investment in plant and equipment and the value of the work-in-process, which will only increase with the move to 300mm production equipment, tool availability is a priority to our customers. While our GUTS response system continues to be the leader in reactive customer support, the industry is moving to Internet-based proactive remote e-diagnostics to further enhance production efficiency and throughput and leverage industry-wide core competencies. Helix is well positioned to provide e-diagnostics using our On-Board Information Network and our GOLDLink capability.

Our On-Board network provides us with the ability to access performance data of key vacuum system components, including third-party products, right at the production tool. In fact, we have been doing that with our cryopumps since the early 1990's. However, accessing the data is only the beginning. The real value is what to do with the data.

Using our GOLDLink capability, Helix is:

\* Transmitting tool performance data via the Internet directly from the fab to our GOLDLink customer support center in Massachusetts, where

\* Our vacuum system specialists continuously monitor and analyze the tool performance data, comparing the actual performance parameters with the optimum "expected" performance parameters (developed by our vacuum experts in conjunction with our customers and third-party suppliers), and

\* Providing our customers with solutions to any vacuum system problems.

Helix's vacuum system experts are the users of the information. We give our customers "solutions," not information. This allows our customers to redirect their employees to focus on their core competencies by leveraging Helix's vacuum technology and control core competencies. Our ability to detect performance anomalies before they cause a system failure is saving

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customers significant tool downtime and increasing plant productivity at each of our GOLDLink-connected operating sites. At December 31, 2000, we were providing various levels of GOLDLink support to more than 25 semiconductor-related fab sites around the world. In the process, we are bringing new meaning to the words "Global Support."

### CUSTOMERS AND MARKETS

Our customer service and technical support are important competitive factors and are essential to building and maintaining close, long-term relationships with our customers. We sell our products and services, primarily through direct sales personnel, to customers in the United States, Europe, and the Pacific Rim. Our sales and service personnel are located at our headquarters in Mansfield, Massachusetts, and in regional offices in Longmont, Colorado; Santa Clara, California; Austin, Texas; Tempe, Arizona; Darmstadt, Germany; Orsay, France; Livingston, Scotland; Tokyo, Japan and Hsinchu, Taiwan. We also have distributors and representatives in other major markets.

We market and sell our products and services primarily to large, original equipment and end-user manufacturers of semiconductor, data storage, flat panel display, and other industrial applications. We have sold our products and services to more than 250 OEMs and more than 750 end-users worldwide, resulting in a revenue mix of approximately 60% to 70% from OEMs and 30% to 40% from end-users.

The Company's one reportable segment is cryogenic and vacuum equipment. The Company's largest customer is Applied Materials, the world's largest manufacturer of semiconductor capital equipment, representing 40%, 29%, and 20% of net sales for 2000, 1999, and 1998, respectively. Our 10 largest customers accounted for 60%, 50%, and 38% of net sales for 2000, 1999, and 1998, respectively. Information concerning the Company's segment information and geographical breakdown is included in Note F of "Notes to Consolidated Financial Statements" included elsewhere in this report.

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Following is a discussion of the major markets for our products and services:

**Semiconductor.** We sell our products and services primarily to semiconductor capital equipment manufacturers and end-users for incorporation into equipment used to make integrated circuits. Our products are currently used in a variety of applications including physical and chemical vapor deposition, ion implantation, and etch. Precise vacuum levels enable the production of integrated circuits. We anticipate that the semiconductor capital equipment industry will continue to be a substantial part of our business for the foreseeable future. Approximately 60% to 70% of our revenues generally come from this customer group.

**Data Storage.** We sell products and services to data storage equipment manufacturers and to data storage device manufacturers for use in producing a variety of products including CDs; computer hard disks, including both media and thin-film heads; CD-ROMs; and DVDs. These products use a PVD process to produce optical and magnetic thin-film layers, as well as a protective wear layer. Approximately 10% to 15% of our revenues generally come from this customer group.

**Flat Panel Display.** We sell our products and services to manufacturers of flat panel displays, which have fabrication processes similar to those employed in manufacturing integrated circuits. Flat panel technology produces bright, sharp, large, color-rich images on flat screens for products

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ranging from hand-held computer games to laptop and desktop computer monitors to large-screen televisions. Approximately 5% to 10% of our revenues generally come from this customer group.

Other Customers. We sell our products and services to OEMs and producers of end products in a variety of industrial markets. Thin-film optical coatings are used in the manufacture of many industrial products including architectural glass, eyeglasses, lenses, and front surface mirrors. Thin films of diamond-like coatings and other materials are currently applied to products to strengthen and harden surfaces on such diverse products as tools, razor blades, automotive parts, and hip joint replacements. Certain superconductivity companies use our cryogenic coolers for their base stations. Our products are also used in a variety of analytical instruments, industrial, and scientific research products. Approximately 10% to 20% of our revenues generally come from this customer group.

The Company and Ulvac Corporation ("Ulvac") of Chigasaki, Japan, operate a joint venture, Ulvac Cryogenics, Inc. ("UCI"), formed in 1981, which manufactures and sells cryogenic vacuum pumps, principally to Ulvac, one of the largest semiconductor OEMs in Japan. Each company owns 50% of UCI and made initial cash investments of approximately \$100,000, with no subsequent cash investments. The joint venture arrangement includes a license and technology agreement from the Company and a management and consultation agreement from Ulvac. The Company and Ulvac essentially share control of the joint venture.

### MANUFACTURING

We manufacture our pump and compressor components at one of our facilities in Mansfield, Massachusetts, and our measurement gauge components at our Longmont, Colorado, facility. Our use of a lean manufacturing concept, including fast cycle times, embedded quality control, and supply chain management, allows us to consistently meet or exceed our customers' demands for having the right product, at the right place, at the right time.

Our manufacturing activities consist of the assembly and testing of components and subassemblies, which are then integrated into our final products. Once final testing of all subassemblies is completed, the final product is subjected to a series of reliability enhancing operations prior to shipment to customers. We purchase a wide range of electronic, mechanical, and electrical components, some of which are designed to our specifications. We outsource some of our subassembly work. Our ability to meet our customers' significantly fluctuating product demands at consistently short lead times using demand flow and lean manufacturing techniques is a distinct competitive advantage.

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The Company's business is, generally, not dependent on the availability of raw materials or components from any single source. Certain components, however, may be available from only one or two qualified sources. The Company's policy is to develop alternative sources for components and, where possible, to avoid using scarce raw materials in its products.

### BACKLOG

The backlog of orders believed to be firm was approximately \$26.6 million at December 31, 2000, compared to \$13.8 million at December 31, 1999. The Company expects to recognize revenues from essentially all of the

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December 31, 2000, backlog during 2001.

### RESEARCH AND DEVELOPMENT

The Company expended \$16,131,000 in 2000 on research and development efforts, compared to \$9,916,000 and \$10,106,000 in 1999 and 1998, respectively. These expenditures reflect development activities relating to product enhancements, new products for commercial applications, and GOLDLink support.

### EMPLOYMENT

Total employment in the Company at the end of 2000 was 945, compared to 649 and 457 at the end of 1999 and 1998, respectively. This includes 203 temporary employees at the end of 2000, compared to 90 and eight in 1999 and 1998, respectively.

### ENVIRONMENTAL AFFAIRS

Compliance with federal, state, and local provisions relating to environmental quality has not had, and is not expected to have, a material impact upon capital expenditures, earnings, or the competitive position of the Company.

### INTELLECTUAL PROPERTY

The Company holds many U.S. and foreign patents in the fields of vacuum pumping, gauging, and cryogenics that it believes are significant to its operations. These patents expire at various years through 2020. No patents that the Company considers significant expire during the next five years. The Company has a number of trademarks that it considers important to its business. These trademarks are protected by registration in the United States and other countries in which the Company's products are marketed.

### COMPETITION

The markets for our products and services are highly competitive and characterized by ongoing technological development and changing customer requirements. Significant competitive factors in our markets include product performance, price, quality, reliability, delivery, and level of customer service and support.

While we believe that our products are industry standards, we have several foreign and domestic competitors for each of our product lines. Some of these competitors are subsidiaries/divisions of larger corporations and have greater resources than we have. Our ability to continue to compete successfully depends on our ability to make timely introductions of system enhancements and new products and services, while continuing to provide excellent pre- and post-sales support on existing products and services. We believe we will be required to maintain a high level of investment in research and development and sales and marketing in order to remain competitive.

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### RISK FACTORS

Investors should consider carefully the following factors, in addition to the other information contained in this filing, before investing in the shares of the Company's common stock. This filing, and the documents incorporated by reference, may include a number of forward-looking statements, including, but

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not limited to, statements with respect to the Company's future financial performance, operating results, plans, and objectives. Such statements are made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those anticipated by such statements depending on a variety of factors, some of which are described below. The Company undertakes no responsibility to update any forward-looking statements that may be made to reflect events and circumstances occurring after the dates the statements were made or to reflect the occurrence of unanticipated events.

**Customer Concentration.** A small number of customers are currently responsible for a significant portion of the Company's net sales. In 2000 the Company's ten largest customers accounted for approximately 60% of net sales, including 40% to Applied Materials. The Company anticipates that a small number of customers will continue to account for a large portion of its net sales. Furthermore, the Company generally does not obtain firm long-term volume purchase commitments from its customers, and because of its efficient manufacturing process has short lead-times for customer orders. In addition, customer orders can be canceled and volume levels can be changed or delayed. The timely replacement of canceled, delayed, or reduced orders with new business cannot be assured. While the Company's products are used in the manufacture of data storage devices, advanced coating applications, and flat panel display product markets, the majority of the Company's sales are to customers in the semiconductor capital equipment industry. The factors discussed below affecting the semiconductor capital equipment industry in general, or any of the Company's major customers in particular, could have a material adverse effect on the Company, its results of operations and prospects.

**Quarterly Operating Results and Potential Volatility of Common Stock Price.** Our quarterly operating results have fluctuated significantly and we expect them to continue to experience significant fluctuations. Downward fluctuations in our quarterly results have historically resulted in decreases in the price of our common stock. Quarterly operating results are affected by a variety of factors, many of which are beyond our control. These factors include:

- \* Changes or slowdowns in economic conditions in the semiconductor and semiconductor capital equipment industries and other industries in which our customers operate.
- \* The timing and nature of orders placed by major customers.
- \* Customer cancellations of previously placed orders and shipment delays.
- \* Changes in customers' inventory management practices.
- \* The introduction of new products by our competitors or us.

Our operating results in one or more future quarters may fall below the expectations of analysts and investors. In those circumstances, the trading price of our common stock would likely decrease.

**Volatility of the Semiconductor Industry.** The Company's business depends in large part upon the capital expenditures of semiconductor manufacturers, which in turn depend on the current and anticipated market demand for integrated circuits and products utilizing integrated circuits. The semiconductor industry is highly cyclical and has historically experienced periodic downturns, which generally have had a severe effect on the semiconductor industry's demand for capital equipment and have affected the Company's results of operations.



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Any weakness in demand in the semiconductor industry is likely to have a similar adverse effect on the Company's business and results of operations. In addition, the need for continued investment in engineering, research and

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development, and extensive ongoing customer service and support requirements worldwide will limit the Company's ability to significantly reduce expenses in response to any such downturn. Further, there can be no assurance that developments in the semiconductor industry or the semiconductor equipment industry will occur at the rate or in the manner expected by the Company.

**Dependence on New Products, Product Enhancements, and Global Support.** The Company believes that its continued success will depend significantly on its ability to continuously develop and manufacture new products and product enhancements and expand Global Support to provide maximum vacuum system capability.

If new products have reliability or quality problems, such problems may result in reduced orders, higher manufacturing costs, delays in collecting accounts receivable, and additional service and warranty expense. There can be no assurance that the Company will successfully develop and manufacture new products, or that new products and services introduced by the Company will be accepted in the marketplace. If the Company does not continue to successfully introduce new products and services, the Company's results of operations may be materially adversely affected.

**Risks Associated with Global Market.** The Company sells its products and provides services to customers located throughout the world. Managing global operations and sites located throughout the world presents challenges associated with cultural diversities and organizational alignment. Moreover, each region in the global semiconductor equipment market exhibits unique characteristics that can cause capital equipment investment patterns to vary significantly from period to period. Although international markets provide the Company with significant growth opportunities, periodic economic downturns, trade balance issues, political instability, and fluctuations in interest and foreign currency exchange rates are all risks that could affect global product and service demand.

**Uncertainty of Intellectual Property Protection.** The Company's ability to compete effectively with other companies will depend, in part, on the ability of the Company to protect the Company's technology assets by obtaining and enforcing patents. The Company has a number of patents in the United States and other countries and additional applications are pending for new developments in its equipment and processes. Patent applications in the United States are maintained in secrecy until the patents issue, so the Company cannot be certain that it was the first creator of inventions covered by its pending patent applications or the first to file such patent applications on such inventions. Although the Company believes its products do not infringe on the proprietary rights of third parties, there can be no assurance that third parties will not assert infringement claims against the Company or that such claims will not be successful. There also can be no assurance that the Company's competitors will not infringe on the Company's patents. Even if successful, the defense or prosecution of patent suits is costly and time-consuming. An adverse outcome in a suit in which the Company asserts its patent rights could result in the loss of such rights, and could subject the Company to substantial costs and diversion of Company resources.

**Dependence on Key Employees.** The future success of the Company is dependent, in part, on its ability to retain certain key personnel. The Company also

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needs to attract additional skilled personnel in all areas of its business to continue to grow. Competition for such personnel is intense. There can be no assurance that the Company will be able to retain its existing key management, engineering, and sales personnel or attract additional qualified employees in the future.

**Dependence on Suppliers.** Certain of the components and subassemblies included in the Company's products and systems are obtained from a single source or a limited group of suppliers. Although the Company seeks to reduce dependence on sole- and limited-source suppliers, in some cases the partial or complete loss of certain of these sources could have at least a temporary adverse effect on the Company's results of operations and could damage customer relationships.

**Integration of Future Acquisitions.** The Company may make acquisitions of complementary companies in the future. Managing an acquired business entails numerous operational and financial risks, including difficulties in assimilating acquired operations and new personnel, diversion of management's attention to other business concerns, and potential loss of key employees or customers of acquired operations. The Company's success will depend, to a

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significant extent, on the ability of its executive officers and other members of senior management to respond to these challenges effectively. There can be no assurance that the Company will be able to effectively achieve and manage any such growth, or that its management, personnel, or systems will be adequate to support the Company's operations. Any such inability would have a material adverse effect on the Company's business, operating results, financial condition, and cash flows.

### ITEM 2. PROPERTIES

The Company occupies approximately 345,300 square feet worldwide, as described in the table below.

Location	Size (Sq. Ft.)	Lease Expires	Functions
Massachusetts	155,000	2006	