SOUTHWALL TECHNOLOGIES INC /DE/
Form 10-K
March 31, 2003

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SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

ý **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2002

or

o **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 0-15930

SOUTHWALL TECHNOLOGIES INC.

(Exact name of registrant as specified in its charter)

Delaware	**94-2551470**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
1029 Corporation Way, Palo Alto, California	**94303**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(650) 962-9111**

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

Securities registered pursuant to Section 12(g) of the Act:

Common Stock
(Title of Class)

Indicate by check mark 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 ý No o

Indicate by check mark 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. o

The approximate aggregate market value of the Common Stock held by non-affiliates of the registrant on March 27, 2003 (based upon the closing sales price of the Common Stock on the Nasdaq National Market System on such date) was $13,529,657. For purposes of this disclosure, Common Stock held by stockholders whose ownership exceeds five percent of the Common Stock outstanding as of March 27, 2003, and Common Stock held by officers and directors of the registrant has been excluded in that such persons may be deemed to be "affiliates" as that term is defined in the rules and regulations promulgated under the Securities Act of 1933, as amended. This determination is not necessarily conclusive.

Indicate by check mark whether the registrant is an accelerated filer (as defined by Rule 12b-2 of the Securities Exchange Act of 1934). Yes o No ý

The number of shares of the registrant's Common Stock outstanding on March 27, 2003 was 12,527,460.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement to be filed with the Securities and Exchange Commission in connection with the registrant's 2003 Annual Meeting of Stockholders (the "Proxy Statement") are incorporated by reference in Part III of this Form 10-K. With the exception of the portions of the Proxy Statement expressly incorporated into this Form 10-K by reference, the Proxy Statement shall not be deemed filed as part of this Form 10-K.

SOUTHWALL TECHNOLOGIES INC.

2002 ANNUAL REPORT ON FORM 10-K

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As used in this report, the terms "we," "us," "our," "Southwall" and the "Company" mean Southwall Technologies Inc. and its subsidiaries, unless the context indicates another meaning.

XIR, XUV, Triangle Design, Superglass, Heat Mirror, California Series, Solis, ETCH-A-FLEX, Huper Optik and Southwall are registered trademarks of Southwall. V-KOOL is a registered trademark of Globamatrix Holdings Pte. Ltd. All other trade names and trademarks referred to in this prospectus are the property of their respective owners.

This report contains forward-looking statements as that term is defined in the Private Securities Litigation Reform Act of 1995, that are subject to a number of risks and uncertainties. All statements other than statements of historical facts are forward-looking statements. These statements are identified by terminology such as "may," "will," "could," "should," "expects," "plans," "intends," "seeks," "anticipates," "believes," "estimates," "potential," or "continue," or the negative of such terms or other

comparable terminology, although not all forward-looking statements contain these identifying words. Forward-looking statements are only predictions and include statements relating to:

- our strategy, future operations and financial plans, including, without limitation, our plans to install and commercially produce products on new machines;
- future applications of thin film coating technologies and our development of new products;
- our expectations with respect to future grants, investment allowances and bank guarantees from the Saxony government;
- our projected need for additional borrowings and future liquidity;
- statements about the future size of markets;
- pending and threatened litigation and its outcome;
- our competition; and
- our projected capital expenditures.

You should not place undue reliance on our forward-looking statements. Actual events or results may differ materially. In evaluating these statements, you should specifically consider various factors, including the risks outlined under "Risk Factors." These factors may cause our actual results to differ materially from any forward-looking statement. Although we believe the expectations reflected in our forward-looking statements are reasonable as of the date they are being made, we cannot guarantee our future results, levels of activity, performance, or achievements. Moreover, neither we nor any other person assumes responsibility for the future accuracy and completeness of these forward-looking statements.

PART I

ITEM 1. BUSINESS

Overview

We are a global developer, manufacturer and marketer of thin film coatings for the automotive glass, electronic display and architectural markets. We have developed a variety of products that control sunlight in automotive glass, reduce light reflection and improve image quality in electronic display products, and conserve energy in architectural products. Our products consist of transparent solar-control films for automotive glass; anti-reflective films for computer screens, including flat panel and plasma displays; transparent conductive films for use in touch screen and liquid crystal displays; energy control films for architectural glass; and various other coatings. Based upon our production capacity, we believe we are one of the world's largest producers of sputter-coated, flexible thin film products.

We maintain a website with the address of www.southwall.com. We are not including the information contained on our website as a part of, or incorporating it by reference into, this Annual Report on Form 10-K. We make available free of charge through our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and amendments to these reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the Securities and Exchange Commission. In addition, we intend to disclose on our website any amendments to, or waivers from, our code of business conduct and ethics that are required to be publicly disclosed pursuant to the rules of the Securities and Exchange Commission.

Industry Background

Large area, single layer, thin film coatings were developed in the early 1960s using vacuum evaporation, a less precise precursor to sputter coating. As a result of technological developments in the early 1970s, multi-layer coatings for large substrates became possible. Sputtering based on these developments is used today in a large number of applications in which high quality, uniform coatings need to be deposited on large surfaces or on many smaller surfaces simultaneously. Examples of sputter coating include the deposition of various metal and metal oxide layers on wafers in the semiconductor and hard disk industries, and optical coatings on transparent surfaces in the automotive glass, electronic display, and architectural markets.

Thin film coatings are used in a wide variety of surface applications to control the transmission and reflection of light and the flow of energy. Thin film coatings can modify the transmission and reflection of both visible and non-visible light, such as infrared and ultra-violet light, to enhance the performance and characteristics of the surface.

Thin film process technologies

The three most common methods for commercially producing thin film coatings on glass and flexible substrates are:

Wet coating. The wet coating process generally involves depositing a thin layer of material onto glass by a spin coating technique or onto a flexible substrate, or film, by a number of different methods. In the case of spin coating, which is sometimes used for computer display tubes, or CDTs, a small amount of liquid is placed at the center of a spinning CDT, forcing the liquid from the center towards the outside edge. Once a uniform thin layer of liquid is thus applied, the layer is bake-dried at a moderate temperature. In the case of film coating, a thin layer of liquid material is applied to the surface of plastic film and then dried by means of thermal or direct radiation. This process is generally less expensive than sputter-coating, but generally yields coatings with lower quality, optical and mechanical characteristics.

Direct coating onto glass substrates. Direct coating onto glass can be accomplished by sputtering and by pyrolytic means. Direct-to-glass sputtering is a mature, well-known process for applying thin film coatings to glass. This technology is commonly used to manufacture products that conserve energy in buildings. Pyrolytic coatings are formed directly on the glass as it is produced on a float line. The process uses the heat of the molten glass to make a single layer, metal oxide coating from a solution sprayed onto the glass. Because this technique produces only single layer coatings, the solar

performance is limited.

Sputter coating onto flexible film substrates. The sputter coating process, which is the process we primarily employ, deposits a thin layer of materials, generally metals and metal oxides, onto the surface of a flexible substrate, usually polyester. The substrate can then be either laminated in or applied to glass or suspended between panes of glass. The substrate can be applied to both flat glass and curved glass, such as is used in automotive applications.

The thin film coating process begins with a clear base substrate that is typically glass or a flexible polyester film. When using a flexible film, a hard coat is sometimes applied to prevent undesired interactions between the materials to be deposited and the base substrate, as well as improve the mechanical properties of the coating. Various materials are then deposited in very thin layers on the substrate. The process of building up the various layers results in a "stack." The stack consists of layers of materials that produce the desired optical and performance effects. In some applications, primarily with flexible films, adhesive or protective layers may be applied to the substrate to improve the subsequent application of the product onto a rigid substrate, such as glass.

Our Markets

Primary markets for the thin film coated substrates that we manufacture are the automotive glass, electronic display and the architectural markets. Advances in manufacturing processes coupled with improved thin film deposition technologies in the automotive glass and electronic display markets are reducing production costs, allowing thin film coated substrates to more cost-effectively address these markets.

Automotive glass products

Thin film coated substrates we sell in this market reflect infrared heat. These coatings allow carmakers to use more glass and increase energy efficiency by reducing the demand on a vehicle's air conditioning system, as well as improving thermal comfort in the vehicle. Thin film coated substrates in this market are sold primarily to original equipment manufacturers, or OEMs, that produce glass for sale to European manufacturers of new cars and trucks for worldwide distribution. These substrates are also sold to independent glass manufacturers as part of a large aftermarket for replacement automobile glass. In addition, thin film coated substrates for retrofit application to the inside surface of a vehicle window are sold through resellers who install the film.

Nearly all automotive glass in the world uses some degree of tint or coloration to absorb light and solar energy, thus reducing solar transmission into the vehicle. This tint is usually created through the mixing of inorganic metals and metal oxides into the glass as the glass is produced. The cost of adding these materials is very low, but the solar control benefit is limited by the fact that solar energy is absorbed in the glass, causing the glass to heat up which eventually increases the temperature of the inside of the automobile. We began production for this market in 1996.

Electronic display products

Thin film coated substrates we sell in this market primarily reduce glare caused by reflection from glass surfaces, improve contrast and image quality, and reduce energy emission from and build up of static charge on the computer display screen. Our thin film coated substrates are used in cathode ray

tubes, or CRTs, liquid crystal and plasma displays, and in applications such as touch screens, wireless telephones and automated teller machines. In 2002, we started shipping production quantities and sizes of a new anti-reflective film specifically designed for the liquid crystal display and plasma display panel markets. Thin film coated substrates in this market are generally sold to OEMs, which supply the film to flat screens.

We began commercial production for the electronic display market in 1996.

Architectural products

Thin film coated substrates we sell in this market are primarily used to control the transmission of heat through window glass, as well as to limit ultra-violet light damage. Window glass is a poor thermal barrier. The primary source of heat build-up and loss in buildings is through the glass windows. Our original business, in which we began volume production in 1979, focused on this market.

Technology

In a sputtering process, a solid target and a substrate are placed in a vacuum chamber. By adding a small amount of process gas, typically argon, to the chamber and negatively charging the target, the process gas is ionized and a plasma discharge is formed. The positively charged gas ions strike the solid target with enough force to eject atoms from its surface. The ejected target atoms condense on the substrate and a thin film coating is constructed atom by atom. By placing a magnet behind the target, the electrons in the ionized plasma are confined to a specific region on the target enhancing the creation of ionized gas atoms and increasing the efficiency of the target atom ejection process. By using different targets as the substrate moves through the vacuum chamber, we can create a multi-layered coating, or stack.

If the process gas is inert, such as argon, the coating will have the same composition as the target material. As an example, many of our coatings have a layer of silver in the stack. However, by adding a reactive gas such as oxygen or nitrogen to the process, it is possible to create metal oxide or metal nitride coatings from a metal target.

The advantages of our sputtering process include the high density of the formed coatings and the high degree of uniformity control that we can achieve.

While predominantly relying on sputter coating technology, we are actively developing new technologies and processes such as PECVD. The PECVD technique uses a gas rather than a solid target as the base material for the coating. The gas in the deposition chamber is excited into a very reactive plasma, using the energy from a microwave source mounted onto the chamber. A chemical reaction involving the excitement of gas molecules at the surface of the substrate then creates the thin film coating. In the past, this technique lacked the uniformity control necessary to make it useful for optical coatings, where uniformities of a few percent are required. New developments in this area have improved PECVD uniformity levels to the point that PECVD can now be explored for optical coatings. We plan to employ our new PECVD technology in one of our production machines (PM 7) in Tempe. However, since this system embodies a completely new technology, we expect and have budgeted for a much slower start-up of this system compared to our standard sputter coating systems. This system is also limited by its ability to process only rolls which are two feet wide or less.

In addition to the vacuum-based deposition techniques described above, we have developed the ability to deposit wet chemistry based coatings under atmospheric conditions. In this technique, the active component of the thin film is in a solution and is applied to the substrate by rotating cylinder. After applying the wet film, the substrate is heated, evaporating the solvent and leaving a thin film of the active component behind. In Tempe, this technology is used to apply an anti-smudge coating on top of our sputtered anti-reflective films. The function of the anti-smudge coating is to make the final

product more resistant to fingerprints and to make it easier to clean. Other coatings can be applied through this technique as well, and programs are in place to develop adhesive coatings and other coatings that enhance the mechanical durability of our products.

We rely extensively upon trade secrets and know-how to develop and maintain our competitive position. We have 29 patents and seven patent applications pending in the United States and 39 patents and more than 50 patent applications pending outside the United States that cover materials, processes, products and production equipment. Of our existing patents, two U.S. patents and three international patents will expire in the next three years. We also seek to avoid disclosure of our know-how and trade secrets through a number of means, including requiring those persons with access to our proprietary information to execute nondisclosure agreements with us. We consider our proprietary technology, as well as its patent protection, to be an important factor in our business.

Products

The following table describes the markets into which we sell our products, the applications of our products, our product families, key features of our various products and representative customers.

MARKET	APPLICATION	FILM PRODUCTS	KEY FEATURES	REPRESENTATIVE CUSTOMERS
Automotive glass	Windscreens, side windows, and back windows	Infrared reflective (XIR 70 and XIR 75)	Transmits 70% or 75% visible light Reflects 85% of infrared heat energy	Saint Gobain Sekurit Pilkington PLC

MARKET	APPLICATION	FILM PRODUCTS	KEY FEATURES	REPRESENTATIVE CUSTOMERS
	After-market installation	Solis/V-KOOL	Transmits 70% or 75% visible light	Globamatrix
		Huper Optik	Reflects 85% of infrared heat energy	Huper Optik
Electronic display	Flat screen monitors and TVs	Anti-reflective absorbing (ARA)	Pigmented film 8X reduction in light reflection High picture quality	Mitsubishi Electric Polar Vision
	Liquid crystal display (LCD) screens LCD reflector for lighting sources	Anti-reflective clear (ARC) Silver reflecting	Clear anti-reflective product 95% Reflecting Light-weight mirror	Polar Vision Mitsui Chemicals Marubeni
	Plasma display panels (PDP)	Infrared reflective (XIR 70) Anti-reflective clear (ARC)	Clear and Conductive Clear infrared blocking	Mitsui Chemicals
Architectural	New and retrofit residential and commercial windows and doors	Suspended Heat Mirror	Cool in summer Warm in winter UV blocking Noise reducing	Kensington Hankuk Edge Seal
	Commercial buildings	Laminated (XIR70 HT)	Infrared reflecting UV blocking Cool in summer Noise reducing	Gulf Glass Industries Cristales Curvados
	After-market installation	Solis/V-KOOL Huper Optik	Infrared reflecting UV blocking Cool in summer Noise reducing	Globamatrix Huper Optik

Automotive glass products

Direct-to-glass sputtering for automotive windshields has not historically been well developed because of the need to bend the glass before it can be coated and then applied to an automobile. Coating flat glass and then bending it to match complex automobile designs is less difficult. Therefore, coating flat glass and then bending it is the method currently used by most glass producers. Sputter coated flexible substrates that we produce can be applied to windshields with different curvatures and incorporated into most in-line windshield production process used by glass companies today. Our net revenues from sales of automotive glass products were $20.2 million in 2000, $37.4 million in 2001 and $25.7 million in 2002.

Infrared reflective films. Our XIR coated solar-control films are transparent, sputter-coated, polyester films used in laminated glass for automobiles. The films have a patented, transparent solar-control coating on one side and a proprietary adhesion-promotion layer on the other.

Applied solar-control films. Our Solis/V-KOOL and Huper Optik solar-control films for aftermarket installation for automotive glass utilizes our XIR and other patented coating technologies. The product is applied to existing windows and has a protective hard coat over the patented, transparent solar-control coating on one side and the adhesion layer on the other. Solis/V-KOOL and Huper Optik are sold through a worldwide distribution network of companies owned by or affiliated with Globamatrix.

Electronic display products

Our sputter coated substrates offer the high optical quality necessary for higher resolution electronic displays. Our substrates can be easily cut into different shapes and sizes, providing increased flexibility for our customers. In addition, our products can effectively reduce undesirable or potentially harmful emissions without affecting the resolution of the display. Our net revenues from sales of electronic display products were $47.7 million in 2000, $29.7 million in 2001 and $26.6 million in 2002.

Anti-reflective films. Our anti-reflective films minimize reflection of visible light and electromagnetic radiation while allowing high picture quality. Our anti-reflective absorbing, or ARA, films are pigmented and used in flat screen monitors. Our anti-reflective clear, or ARC, films are clear and used in LCD screens.

Silver reflecting films. Our light-weight silver reflecting film is a mirror-like product used as a reflector in LCD backlit screens.

Transparent conductors. XIR films are used in the plasma display panel markets to block near-infrared and electromagnetic radiation from the display. Our ALTAIR-M films are used in products such as touch panels, liquid crystal displays and electroluminescent displays where the circuit or conductive material must not obscure the screen. ALTAIR films are also used in electromagnetic interference shielding, infrared rejection and electrostatic discharge packaging applications.

Architectural products Windows containing our Heat Mirror product have approximately two to five times the insulating capacity of conventional double-pane windows. They also provide high levels of solar shading while transmitting a high percentage of visible light. In addition, our products also offer ultra-violet protection and reduce noise and condensation build-up. Architectural glass manufacturers are looking for ways to improve insulation without adding numerous panes of glass that are impractical to lift and cannot be supported by a structure's frame. This drives the need for thin film inside the glass that is a high performance insulator at a fraction of the weight of the glass. Our net revenues from sales of architectural products were $17.4 million in 2000, $15.9 million in 2001 and $16.5 million in 2002.

Suspended Heat Mirror films. Our Heat Mirror films provide a variety of shading and insulating properties as well as ultra-violet damage protection. Windows are the primary areas of heat loss in winter and a major source of heat gain in summer. Heat Mirror films, which are sold in rolls to window manufacturers, are suspended in the airspace between sealed double-pane residential and commercial windows. We have developed proprietary film-mounting technology, which we license to window fabricators. There are a total of 66 Heat Mirror licenses in approximately 20 countries. We currently offer 12 different Heat Mirror films for architectural applications.

Laminated films. Our thin film coated flexible substrates are laminated between panes of glass and perform similarly to our XIR solar control films for automobiles. This film is currently sold primarily to fabricators of laminated window glass for large commercial building applications such as airports, office buildings, and museums. We have sold a total of 20 licenses for this architectural film product in approximately 15 countries.

Applied solar-control films. Our XIR coatings for architectural applications are Solis/V-KOOL and Huper Optik solar-control films for the architectural glass aftermarket. This product is applied to existing windows and has a protective hard coat over the patented, transparent solar-control coating on one side and an adhesion layer on the other. Solis/V-KOOL and Huper Optik are sold through a worldwide distribution network of companies owned by or affiliated with Globamatrix.

Sales and Marketing

Distribution channels

We sell our automobile and electronic display products primarily to OEMs in North America, Europe, the Middle East and Asia, principally through our own direct sales force and sales representatives. Mitsui Chemicals is our licensee and distributor for certain of our electronic products in Japan and Taiwan. Mitsui Chemicals also has exclusive manufacturing rights for certain of our electronic products in Japan and Taiwan using our proprietary sputtering technology.

We supply our Heat Mirror architectural products to approximately 50 insulated glass and window fabricators and distributors worldwide. Our proprietary mounting technology is licensed to our customers, who use special equipment for the manufacture of Heat Mirror-equipped windows. Our field services organization assists customers in the manufacture of Heat Mirror-equipped windows. In North America, we also promote our Heat Mirror product line through approximately 30 regionally based architectural glass sales representatives.

We sell our Solis/V-KOOL and Huper Optik aftermarket products for the automotive glass and architectural markets through a worldwide distribution network of companies owned by or affiliated with Globamatrix.

International revenues amounted to approximately 85%, 87% and 85% of our net revenues during 2000, 2001 and 2002, respectively. The principal foreign markets for our products in 2002 were Japan ($24.9 million), and France ($12.9 million).

Warranties

We offer warranties on our products which we believe are competitive for the markets in which those products are sold. The nature and extent of these warranties depend on the product, the market, and in some cases the customer being served. We carry liability insurance. However, our insurance does not cover warranty claims and there can be no assurance that our insurance will be sufficient to cover all product liability claims in the future or that the costs of this insurance or the related deductibles will not increase materially.

Customers

Our customers include many of the world's leading OEMs in the automotive glass and electronic display markets. Our customers in the OEM automotive glass market include Saint Gobain Sekurit and Pilkington PLC, which sell glass to automobile manufacturers including DaimlerChrysler, Renault, Audi, BMW, Volvo, Volkswagen and the PSA Group (which includes Peugot and Citroen). We currently have supply agreements with Saint Gobain Sekurit and Pilkington, which run through December 2003 and 2004, respectively, and may be renewed by mutual consent of the parties. Our failure to produce the required amounts of products under these agreements could result in price penalties on future sales under the agreements.

Our customers in the electronic display market include Mitsubishi Electric Corporation and Mitsui Chemicals. Our customers in 2002 in the architectural market included approximately 60 fabricators of insulated glass units and laminated glass for architectural applications.

Our aftermarket applied film in the automotive and architectural glass markets is sold pursuant to an exclusive worldwide license in our distribution agreement with Globamatrix. Under the Agreement, which is scheduled to expire in 2011, Globamatrix agreed to purchase an aggregate of approximately $200.0 million of our products during the term of the agreement subject to volume and quality standards. Our failure to produce required amounts of product under the agreement will result in penalties under which we would be required to reimburse Globamatrix for the full cost of any product not timely delivered. In the 2002, Globamatrix' purchases were approximately $0.2 million less than its minimum commitment. We forgave the shortfall as an accommodation to a long-standing customer.

A small number of customers have accounted for a substantial portion of our revenues. Our ten largest customers accounted for approximately 85%, 85% and 84% of our net sales in, 2000, 2001 and 2002, respectively. During 2002, Saint Gobain Sekurit, Mitsubishi, Mitsui Chemicals and Pilkington PLC accounted for 18.7%, 18.0%, 15.7% and 10.8%, respectively, of our net sales. During 2001, Pilkington, Mitsubishi and Saint Gobain Sekurit accounted for 15.8%, 21.2% and 23.9%, respectively, of our net sales. During 2000, Saint Gobain Sekurit, Mitsubishi and Samsung accounted for 14.1%, 37.3% and 12.2%, respectively, of our net sales. Because of our fixed costs, the loss of, or substantial reduction in orders from, one or more of these customers would have a material adverse affect on our profitability and cash flow. The timing and amount of sales to these customers depends on sales levels and shipping schedules for the OEM products into which our products are incorporated. We have no control over the shipping dates or volume of products shipped by our OEM customers, and we cannot be certain that they will continue to ship products that incorporate our products at current levels or at all. In addition, we rely on our OEM customers to timely inform us of opportunities to develop new products that serve end-user demands.

Research and Development

Our research and development activities are focused upon the development of new proprietary products, thin film materials science, and deposition process optimization and automation and applied engineering. Our research and development expenditures totaled $6.7 million, $5.5 million and $7.7 million, or approximately 7.9%, 6.6% and 11.2% of total net revenues, during 2000, 2001 and 2002, respectively.

Historically, our research and development efforts have been driven by customer requests for the development of new applications for thin film coated substrates. To meet the future needs of our customers, we continually seek to improve the quality and functionality of our current products and enhance our core technology. For example, in 2002 we began shipping production quantities and sizes of an anti-reflective film specifically designed for the liquid crystal display and plasma display panel markets that maintain optical clarity while reducing the reflection of ambient light to improve image quality. We cannot guarantee that we will be successful in developing or marketing these applications.

Although our production systems are built by outside vendors, we work closely with our vendors on the detailed implementation of the production machine designs. Our experience with designing production systems is critical for the proper construction of these machines. Once a new machine is installed and accepted by us, our engineers are responsible for transitioning the system into commercial production to help ensure stable manufacturing yields.

Manufacturing

The table below provides information about our current production machines and the class of products that each is currently tooled to produce.

Status	Machine Number	Location	Primary Markets For Current Production	Year Commercial Production Initiated/ Expected	Estimated Annual Capacity (Millions of Sq. Ft.)[1]
Existing	PM 1	Palo Alto	Research and development	1980	
	PM 2	Palo Alto	Architectural and electronic display	1982	6.0
	PM 3[2]				
	PM 4A	Palo Alto	Automotive, architectural and display	1991	12.0
	PM 4B	Palo Alto	Automotive, architectural and display	1991	12.0
	PM 5	Tempe	Electronic display	1997	6.5
	PM 6	Tempe	Automotive and electronic display	2000	13.0
	PM 7[3]	Tempe	Electronic display	2003	3.0
	PM 8	Dresden	Automotive and architectural	2000	16.0
	PM 9	Dresden	Automotive and architectural	2001	16.0
	PM 10[4]	Dresden	Automotive and architectural	2003	16.0

(1) Estimated annual capacity represents our estimated yields based on our historical experience and anticipated product mix. The amount of product for which we receive orders and which we actually produce in any year may be materially less than these estimates.

(2) We sold PM 3 to an unrelated third party in 1995.

(3) We expect this machine, which uses PECVD-based technology, to be used primarily for research and development in 2003, with limited commercial production in 2003.

(4) PM 10 was ready for commercial production in the first quarter of 2003. Customer approvals of initial products that have been manufactured were received during the quarter.

We also have two small-scale sputtering machines in Palo Alto which are used for pre-production qualification when they are not used for their primary research and development function. In Tempe, we also employ a wet coating and laminating machine, which is used to apply various topcoats and adhesives, and for lamination of liner films.

All of our U.S. production facilities are ISO 9001/2000 certified, and our Dresden facility is ISO 9001/2000 certified.

Environmental Matters

We use hazardous materials in our research and manufacturing operations and have air and water emissions that require controls. As a result, we are subject to stringent federal, state and local regulations governing the storage, use and disposal of wastes. We contract with outside vendors to

collect and dispose of waste at all of our production facilities in compliance with applicable environmental laws. In addition, we have in place procedures that we believe enable us to deal properly with the gasses emitted in our production process, and we have implemented a program to monitor our past and present compliance with environmental laws and regulations. Although we believe we are currently in material compliance with such laws and regulations, current or future laws and regulations may require us to make substantial expenditures for compliance with chemical exposure, waste treatment or disposal regulations.

Suppliers and Subcontractors

We manufacture our products using materials procured from third-party suppliers. We obtain certain of these materials from limited sources. For example, we believe the substrates we use in the manufacture of the Heat Mirror product is currently available from one qualified source, Teijin Limited, holder of approximately 5.3% of our common stock as of March 24, 2003. The substrates used in the manufacture of our anti-reflective film are currently available from only two qualified sources, Teijin and Dai Nippon Printing. The loss of these current sources could adversely affect our ability to meet our scheduled product deliveries to customers. In each case, alternative sources of supply are being pursued; however, it takes approximately 18 to 24 months for us to qualify a new supplier and we may not be able to successfully develop alternative sources of supply.

We rely on third-party subcontractors to add properties, such as adhesives, to some of our products. There are only a limited number of qualified subcontractors that can provide some of the services we require. A significant increase in the price charged by one or more of our subcontractors could force us to raise prices on our products or lower our margins, which could have a material adverse effect on our operating results.

Furthermore, our production machines are large, complex and difficult to design and assemble. It can take up to a year from the time we order a machine until it is delivered. Following delivery, it can take us, with the assistance of the manufacturer, up to six additional months to test and prepare the machine for commercial production. There are a limited number of companies that are capable of manufacturing these machines to our specifications. Our inability in the future to have new production machines manufactured and prepared for commercial production in a timely manner would have a material adverse effect on our business.

Backlog

Our backlog primarily consists of purchase orders for products to be delivered within 90 days. As of March 31, 2002 and March 23, 2003, we had a backlog of orders able to be shipped over the next 12 months of approximately $15.8 million and $12.3 million, respectively. None of these orders are firm orders and all are subject to cancellation. For these reasons, these orders may not be indicative of our future revenues.

Competition

The thin film coatings industry and the markets in which our customers compete experience rapid technological change, especially the electronic display market. Adoption by our competitors of new equipment or process technologies could adversely affect us. We have a number of present and potential competitors, including our customers, many of which have greater financial resources and greater selling, marketing and technical resources than we possess.

Automotive glass market. Solar control products in the automotive OEM market are provided by large, worldwide glass laminators who typically have divisions also selling products to the commercial flat glass industry. Several of these companies, such as PPG, Pilkington PLC, Saint Gobain, Asahi, Guardian, and Glaverbel, have direct-to-glass sputtering capability. In the applied film segment of the

automotive market, companies such as 3M, Bekeart, CP Films (a subdivision of Solutia), and Lintec Inc. produce competitive solar control products that are widely accepted in the market. In addition, during 2001, 3M entered the automotive solar control market with an all-polymer film. Although this non-metallic film has the advantage of being completely corrosion resistant, its many layers may delaminate. We may also be subject to future competition from companies that are able to infuse glass with solar control properties. We estimate that in 2002 our coated substrates were used in less than 1% of the total worldwide automotive OEM glass produced.

Electronic display market. Competitors in the electronic display market include companies developing new coatings, such as wet coatings, for flat panel displays, as well as competitors who supply sputter coated films similar to those produced by us. Customers' selection of

anti-reflective products is driven by quality, price and capacity. In addition, some of our current and potential customers are capable of creating products that compete with our products. We estimate that in 2002 our coated substrates were applied to less than 4% of the products in the 17 inch and 19 inch worldwide, flat screen CRT market.

Architectural market. Products that provide solar control and energy conservation have been available to this market for almost 20 years. Since our introduction of our Heat Mirror suspended film product in 1979, large glass producers such as Guardian, PPG, Appogee, Pilkington, Saint Gobain Sekurit, and Asahi, have produced their own direct-to-glass sputtered products that provide solar control and energy conservation similar to our Heat Mirror product. We estimate that in 2002 our coated substrates were used in less than 1% of the glass used worldwide in residential and commercial buildings.

Basis of competition

We believe we compete principally on the basis of:

- Proprietary thin film sputtering process knowledge and control systems;
- Our extensive thin film materials expertise and optical design capabilities;
- The world's largest installed base of coating machinery for application of sputter coatings to flexible film;
- Our new, state-of-the-art coating facility in a low-cost labor environment, with significant financial support from local and federal governments in Germany; and
- Our ability to easily alter the format of our products, providing our customers with inventory versatility and higher production yields.

Employees

As of February 19, 2003, we had 242 full-time employees, of whom 31 were engaged in engineering, 161 in manufacturing, and 50 in selling, marketing, general management, finance and administration. We are highly dependent upon the continuing services of certain technical and management personnel. None of our U.S. employees is represented by a labor union. To our knowledge, none of our German employees are represented by a labor union. We consider our employee relations to be good.

ITEM 2. PROPERTIES

Our administrative, marketing, engineering and manufacturing facilities are located in two buildings totaling approximately 57,000 square feet in Palo Alto, California, and one building of approximately 55,000 square feet in Tempe, Arizona. The buildings in Palo Alto are occupied under leases that expire from 2004 to 2005, with options to extend some of these leases for terms expiring

through 2009. We have vacated two buildings in Palo Alto, which have lease agreements that expire at December 31, 2004. The lease for the building in Tempe expires in 2007, with options to extend through 2017. We own our 60,000 square foot building in Dresden, which we took possession of in May 2000.

ITEM 3. LEGAL PROCEEDINGS

In July 2002, we were served with a complaint in a lawsuit captioned "Hurricane Glass v. Southwall Technologies Inc. and V-Kool, Inc." filed in the Circuit Court of the Twelfth Judicial Circuit in and for Sarasota County, Florida. The complaint alleges that Hurricane was a

distributor of our "Solis" product, that Hurricane's customers experienced various problems and failures with the product and that, as a result, Hurricane was required to perform repairs and replacements under its warranty provisions. The complaint alleges approximately $440,000 in damages against both defendants. We believe the claims to be without merit and intend to defend the action vigorously. Management believes the ultimate resolution of the matter will not have a material adverse effect on the results of operations, cash flows and financial position.

We have been named as a defendant, along with Bostik, Inc., in an action entitled "WASCO Products, Inc. v. Southwall Technologies Inc. and Bostik, Inc.", Civ. Action No. C 02-2926 CRB, which was filed in Federal District Court for the Northern District of California on June 18, 2002. We were served with the complaint in this matter on July 1, 2002. The plaintiff has filed the matter as a purported class action on behalf of all entities and individuals in the United States who manufactured and/or sold and warranted the service life of insulated glass units manufactured between 1989 and 1999 which contained our Heat Mirror film and were sealed with a specific type of sealant manufactured by the co-defendant. The plaintiff alleges that the sealant provided by the co-defendant was defective, resulting in elevated warranty replacement claims and costs, and asserts claims against us for breach of an implied warranty of fitness, misrepresentation, fraudulent concealment, negligence, negligent interference with prospective economic advantage, breach of contract, unfair business practices and false or misleading business practices. The plaintiff seeks recovery of $100 million for damages on behalf of the class allegedly resulting from elevated warranty replacement claims, restitution, injunctive relief, and non-specified compensation for lost profits. We believe all of the claims to be without merit and intend to defend the action vigorously. We have tendered the defense of this matter to our insurers, who have agreed to pay a percentage of our defense costs under reservation of rights. We believe they are also obligated to pay any resulting settlement or judgment. The action is in the early stages, thus an estimate of our loss exposure cannot be made.

We are a defendant in an action entitled "Portfolio Financial Servicing Company v. Southwall Technologies Inc.," which was filed in state court in Utah on May 22, 2002. This action arises out of sale-leaseback agreements which we entered into with an entity formerly known as Matrix Funding Corporation, or Matrix, in 1999 in connection with the acquisition of two of our production machines. Matrix thereafter filed bankruptcy proceedings. Plaintiffs in the action are Bank of America which alleges that it is the successor in interest to Matrix, and Portfolio Financial Servicing Company which claims to be an agent of the successor to Matrix. The plaintiffs demand payment of $6,468,534, which they allege constitute unpaid lease payments, plus the alleged residual value of the equipment, less monies that Matrix owes to us. The action currently is in the discovery phase. We intend to defend the action vigorously. The action is in its early stages of discovery and the Company is not able to estimate the probability of an adverse outcome; accordingly no additional amounts have been accrued beyond the approximately $3.3 million of the current portion of capital lease obligations due to uncertainty surrounding the potential additional exposure.

We are a defendant in an action filed on April 5, 1996 entitled "Four Seasons Solar Products Corp. vs. Black & Decker Corp., Bostik, Inc. and Southwall Technologies Inc.," No. 5 CV1695, pending in the United States District Court for the Eastern District of New York. Plaintiff is a manufacturer of

insulated glass units which incorporate our Heat Mirror film. Plaintiff alleges that a sealant provided by the co-defendant is defective, asserts causes of action for breach of contract, unfair competition, and fraudulent concealment, and seeks monetary damages of approximately $36 million for past and future replacement costs, loss of customer goodwill, and punitive damages against all defendants. We filed a motion to dismiss. The Court has dismissed the unfair competition and fraudulent concealment claims against us. It has denied our motion to dismiss the breach of contract claim. We believe the claim to be without merit. No adjustment has been recorded due to the uncertainty surrounding the potential exposure.

In October 2000, we were served with a complaint entitled Hurd Millwork, Inc. v. Southwall Technologies Inc., et. al., United States District Court, Northern District of California, Case No. C00-3820 (CRB). Hurd is a manufacturer of insulated glass units, which incorporate Heat Mirror film. Hurd alleged that various failures and deficiencies associated with the insulated glass units gave rise to warranty and other consumer claims. We have reached a settlement with the plaintiff, the terms of which are confidential. Our insurance carriers paid the cash portion of the settlement. We have also provided a discount on the price of future film sales as part of the settlement. During 2002, the plaintiff utilized discounts stemming from the settlement of approximately $15,000.

The insurance carriers in some of the litigation related to alleged product failures and defects in window products manufactured by others in which we were a defendant paid the defense and settlement costs related to such litigation. Those insurance carriers reserved their rights to recover a portion or all of such payments. As a result, those insurance carriers could seek from us up to an aggregate of $12.9 million plus defense costs, although any such recovery would be restricted to claims that were not covered by our insurance policies. We intend to vigorously defend any attempts by these insurance carriers to seek reimbursement. We are not able to estimate the likelihood that these insurance carriers will seek to recover any such payments, the amount, if any, they might seek, or the outcome of such attempts.

In addition, we are involved in certain other legal actions arising in the ordinary course of business. We believe, however, that none of these actions, either individually or in the aggregate, will have a material adverse effect on our business, our consolidated financial position, results of

operations or cash flows.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matters were submitted to a vote of the security holders during the quarter ended December 31, 2002.

EXECUTIVE OFFICERS OF REGISTRANT

The names, ages and positions of our current directors and executive officers are as follows:

Name	Age	Position
Thomas G. Hood	47	President, Chief Executive Officer and Director
Michael E. Seifert	44	Senior Vice President, Chief Financial Officer and Secretary
Sicco W.T. Westra	52	Senior Vice President, Sales and Marketing
Lois A. Cornell	49	Vice President, Chief Information Officer
Wolfgang Heinze	53	Vice President, General Manager Southwall Europe GmbH
Bruce M. Lairson	40	Vice President and Chief Technology Officer
Nasser A. Lama	42	Vice President, U.S. Operations
John Lipscomb	53	Vice President, Corporate Controller

Thomas G. Hood has served as Southwall's President and Chief Executive Officer since July 1998 and as a member of the board of directors of Southwall since March 1998. From March 1998 until

July 1998, he served as Interim President and Chief Executive Officer. From July 1996 to March 1998, he served as Senior Vice President, General Manager, Energy Products Division. From January 1995 to July 1996, he was Vice President, General Manager, International Operations, and from October 1991 to January 1995, he was Vice President, Marketing and Sales. He is the inventor of record on ten of Southwall's patents. Mr. Hood has an MS degree in Mechanical Engineering from New Mexico State University.

Michael E. Seifert has been Senior Vice President, Chief Financial Officer and Secretary of Southwall since December 2002. From May 2001 until December 2002, he served as an independent consultant. From March 2000 until May 2001, he served as the Chief Financial Officer of Sitesmith, Inc. From July 1998 until January 2000, he served as the Chief Financial Officer of SmartDB Corporation, Inc. Mr. Seifert holds a B.S.C. degree in Accounting (Magna Cum Laude) from the University of Santa Clara, and he is a Certified Public Accountant (inactive) in the state of California.

Sicco W. T. Westra has been Senior Vice President, Sales and Marketing since June 2002. From August 1998 until June 2002, he was the Senior Vice President, Engineering and Chief Technical Officer of Southwall.From February 1998 until August 1998, he served as the Director of Global Production Management for Applied Materials, Inc. From March 1994 to August 1998, he served as a Manager of Business Development for BOC Coating Technology, Inc. Dr. Westra holds a PhD. from the University of Leiden in the Netherlands.

Lois Cornell has been Vice President, Chief Information Officer since September 2001. Before joining Southwall she served as a Principal Consultant from August 2000 until August 2001 with FutureNext Consulting, Inc. From January 2000 until June 2000, she served as the Vice President of Business Development with Vista Savant, Inc. From November 1998 until January 2000, she served as the Vice President of Information Technology with Asyst Technologies, Inc. Ms. Cornell holds a B.S. in Industrial Engineering from Cleveland State University; a B.S. in Mathematics and History from Allegheny College; and a M.A. in Education from Allegheny College.

Wolfgang Heinze joined Southwall in January 1999 as Plant Manager of our Dresden factory. In December 2000, Mr. Heinze was promoted to the position of Vice President, General Manager Southwall Europe GmbH. Prior to joining Southwall, Mr. Heinze had been the Chief Executive Officer of FUBA Printed Circuits, GMBH from February 1991 to April 1998. Mr. Heinze has a MD of Commercial Science from the Technical University in Merseburg, Germany.

Bruce M. Lairson joined Southwall in August 2001 as Director of New Products Engineering. In May 2002, he was promoted to the position of Vice President and Chief Technology Officer. Prior to joining Southwall, Mr. Lairson had been the Engineering Project Manager at Maxtor Inc. from June 2000 to July 2001. From March 1999 to June 2000, he served as a Director of Development at Komag Inc. and

Ultracard Inc. From December 1997 to April 1999, he served as the Director of Advanced Technology at Western Digital Inc. Mr. Lairson holds a ME in Applied and Engineering Physics from Cornell University and a MS and PhD in Materials Science from Stanford University.

Nasser A. Lama joined Southwall in September 1999 as Plant Manger of our Palo Alto factory. He was promoted to Vice President, U.S. Operations in March 2000. Prior to joining Southwall, Mr. Lama was Vice President of Operations of Ink Jet Technology, a subsidiary of FrancoTyp-Postalia, from March 1998 to September 1999. From August 1994 to March 1998, he was Director of Operations of Akashic Memories. Mr. Lama has an MS degree in Mechanical Engineering from Memphis State University.

John Lipscomb has been Vice President, Corporate Controller since November 2000. From March 1996 to November 2000, he served as a Finance Director with Informix Software and with ABB LTD. From June 1988 to February 1996, he served in various senior level financial management positions with Apple Computer. Mr. Lipscomb has a B.A. degree in Accounting from the University of Massachusetts at Amherst.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON STOCK AND RELATED STOCKHOLDER MATTERS

Our common stock has been traded on the Nasdaq National Market System under the symbol "SWTX" since the completion of our initial public offering in June 1987. Prices in the following table represent the high and low closing sales prices per share for our common stock as reported by Nasdaq during the periods indicated.

	High	Low
2001		
1st Quarter	$ 11.87	$ 4.68
2nd Quarter	11.25	7.37
3rd Quarter	14.00	6.12
4th Quarter	6.12	2.62
2002		
1st Quarter	$ 12.99	$ 7.19
2nd Quarter	15.45	4.68
3rd Quarter	4.90	1.95
4th Quarter	3.50	2.04

On March 23, 2003 the last reported sale price for our common stock as reported on Nasdaq was $1.10 per share. On such date, there were approximately 372 holders of record of our common stock, and we believe there were approximately 1,500 beneficial owners of our common stock.

We have never declared or paid any cash dividends on our common stock, and we do not anticipate paying cash dividends in the foreseeable future. We currently intend to retain future earnings, if any, to fund the expansion and growth of our business. Payment of future cash dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs and plans for expansion.

ITEM 6. SELECTED FINANCIAL DATA (in thousands, except per share data)

The following selected consolidated financial data as of and for the five years ended December 31, 2002 are derived from our audited consolidated financial statements. This information should be read together with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and related notes included elsewhere in this report.

Consolidated Statements of Operations Data:

	Year-Ended December 31,				
	1998	1999	2000	2001	2002
	(in thousands, except per share data)				
Net revenues, by product					
Automotive glass	$ 12,845	$ 19,477	$ 20,198	$ 37,385	$ 25,697
Electronic display	16,954	16,014	47,734	29,691	26,555
Architectural	20,234	19,107	17,416	15,900	16,507
Total net revenues	50,033	54,598	85,348	82,976	68,759
Cost of sales	44,253	40,706	69,060	60,148	49,614
Gross profit	5,780	13,892	16,288	22,828	19,145
Gross profit %	11.6%	25.4%	19.1%	27.5%	27.8%
Operating expenses:					
Research and development	3,864	5,249	6,732	5,456	7,685
Selling, general and administrative	9,046	8,670	12,614	11,036	12,450
Legal settlement		500	536		
Restructuring costs					2,624
Total operating expenses	12,910	14,419	19,882	16,492	22,759
Income (loss) from operations	(7,130)	(527)	(3,594)	6,336	(3,614)
Interest expense, net	(1,150)	(1,350)	(2,808)	(2,872)	(1,734)
Other income, net	469	62	350	1,385	1,070
Income (loss) before provision for income taxes	(7,811)	(1,815)	(6,052)	4,849	(4,278)
Provision for (benefit from) income taxes	58	50	128	214	(87)
Net income (loss)	$ (7,869)	$ (1,865)	$ (6,180)	$ 4,635	$ (4,191)

Consolidated Balance Sheet Data:

	As of December 31,				
	1998	1999	2000	2001	2002
	(in thousands)				
Cash and cash equivalents	$ 4,136	$ 1,772	$ 61	$ 3,362	$ 1,998
Working capital (deficit)	(4,256)	(11,699)	(32,148		