

# Chapter 5 1999 | 2004

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# 1999 | 2004 **Board of Management**

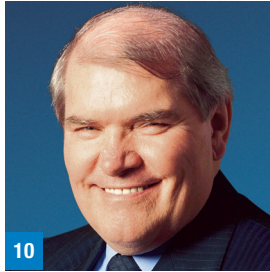


## 1999

- 1. Willem Maris** Chief Executive Officer and Chairman of the Board (until 31-Dec-99)
- 2. Doug Dunn** President, Chief Executive Officer and Chairman of the Board (from 1-Apr-99)
- 3. Peter Wennink** Executive Vice President and Chief Financial Officer
- 4. David Chavoustie** Executive VP Sales
- 5. Martin van den Brink** Executive VP Marketing & Technology
- 6. William Arnold** Chief Executive Scientist
- 7. Nico Hermans** Executive VP Worldwide Customer Support
- 8. Evert Polak** Corporate VP Strategic Business Development
- 9. Ton Willekens** Executive VP Goodsflow

## 2000

- Doug Dunn** President, Chief Executive Officer and Chairman of the Board
- Peter Wennink** Executive Vice President and Chief Financial Officer
- Martin van den Brink** Executive VP Marketing & Technology
- David Chavoustie** Executive VP Sales
- Nico Hermans** Executive VP Worldwide Customer Support
- 10. Stuart McIntosh** Executive VP Operations and President Lithography
- Evert Polak** Corporate VP Strategic Business Development
- William Arnold** Chief Executive Scientist



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**2001-2003**

**Doug Dunn** President, Chief Executive Officer and Chairman of the Board

**Peter Wennink** Executive Vice President and Chief Financial Officer

**Martin van den Brink** Executive VP Marketing & Technology

**Stuart McIntosh** Executive VP Operations and President Lithography

**David Chavoustie** Executive VP Sales

**Martin van den Brink** Executive VP Marketing & Technology

**Stuart McIntosh** Executive VP Operations and President Lithography

**David Chavoustie** Executive VP Sales

**2004**

**Doug Dunn** President, Chief Executive Officer and Chairman of the Board (until 30-Sep-04)

**11. Eric Meurice** President, Chief Executive Officer and Chairman of the Board (from 01-Oct-04)

**Peter Wennink** Executive Vice President and Chief Financial Officer

# Product Portfolio

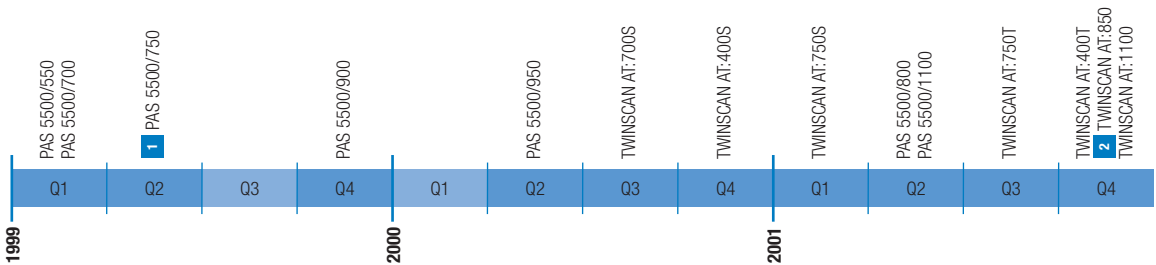


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## PAS 5500/700 Step & Scan DUV System

The PAS 5500 series continued to advance in 1999. After the /550 came the PAS 5500/700. The /700 is an advanced 248-nm DUV scanner, equipped with ASML's ATHENA™ advanced alignment system for improved alignment accuracy on backend process layers, including CMP processes. At the time, the PAS

5500/700B was the ideal system for high volume production of 150-nm design rule ICs. The PAS 5500/700 and the subsequent /750 were very popular tools; in fact, the /750F & G are still available for sale today. So far, the PAS 5500/7X0 series has sold almost 300 systems.



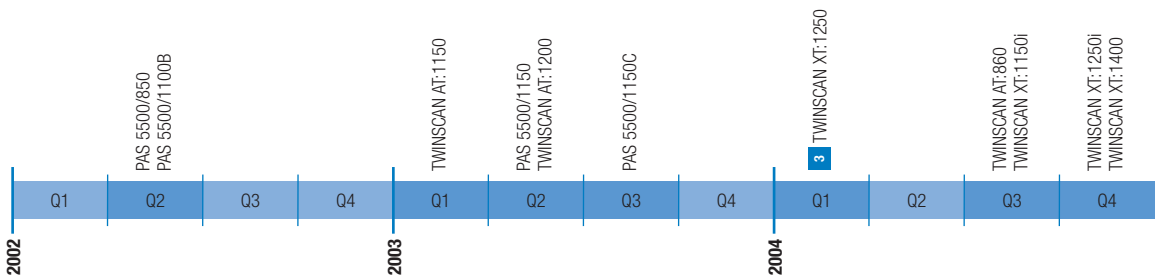


### PAS 5500/1150C

The PAS 5500/1150C 193-nm Step & Scan system is the most advanced PAS 5500 system, and is still very much in demand today. This system enables 90-nm mass production.

The industry's leading resolution tool allows the current technology to be stretched to its limit. The PAS 5500/1150C combines the proven imaging power of

the 0.75 NA 4x reduction lens with the AERIAL™ II illumination technology. An array of advanced illumination enhancement technologies is optionally available. The system is equipped with ATHENA™ and Reticle Blue Align, providing an increased accuracy of single machine overlay of less than 12 nm.





### **TWINSKAN™ AT:750 and AT:850**

The birth of the TWINSKAN platform in 2000 introduced the world to the first dual-wafer stage, still the only dual-stage platform in volume production today. The revolutionary design of the dual stage enables the exposure of one wafer and the alignment of the next wafer to take place in parallel, virtually eliminating overhead time and allowing continuous patterning of wafers for maximum productivity.

The very first dual-stage TWINSKAN was the AT:750T (earlier versions of the TWINSKAN were single-stage). It was first shipped in the summer of 2001.

This KrF system was aimed at 130-nm production with a variable NA up to 0.70. Its KrF successor, the very successful AT:850, had an even larger NA, 0.80, allowing imaging to be pushed to 100 nm. It was first shipped in 2002 and is still in mass production today.

### **TWINSKAN XT:1250i**

The TWINSKAN XT:1250i raised the bar with its revolutionary design and world beating technology. The XT:1250i introduced immersion technology to the market. The TWINSKAN XT:1250i has a unique competitive advantage in bringing immersion techniques to the customer due, in part, to the dual-stage

design of its TWINSCAN system. Wafer measurement is performed “dry,” when the stage is in the metrology position. Wafer imaging is performed using immersion fluid applied between the wafer and the lens, and is completed when the wafer stage is in the exposure position. The dual-stage advantage of TWINSCAN systems enables customers to gain the process enhancements of immersion while continuing with familiar and proven metrology technology.

The TWINSCAN XT:1250i is a 0.85 NA, 193-nm pre-production lithography scanner that combines the improved depth of focus of immersion tools with the precision of “dry” lithography systems. The XT:1250i is the immersion version of ASML’s recently announced TWINSCAN XT:1250. Both systems operate at the 65-nm node with half-pitch resolution at 70 nm.

The XT:1250 is geared for advanced production, while the XT:1250i allows customers to test and qualify immersion processes.

### **SA 5200/55C™ i-Line Stepper**

One of ASML Special Applications’ “specialties” is in creating solutions for customers in the applications markets. The SA 5200/55C stepper uses a 0.48 NA i-line lens with a 21.2-mm image field diameter. These steppers are optimized for 0.50- $\mu$ m production resolution and are ideal for many applications, from telecommunications to ASICs, and for handling various substrates, from Silicon to GaAs and InP. The SA 5200 steppers were also designed to support new functionalities on a production scale required in Micro Systems Technology (MST) or Micro-Electro-Mechanical-Systems (MEMS) technology.

# Forward, with speed and resolution!

Expectations were running high in 1999 as people began to speculate about what the new millennium would hold. We didn't disappoint those expectations: in the millennium year itself, we surprised competitors and customers alike with a revolutionary new dual-stage processing system.

## TWINSKAN™

Following hard on the heels of Step & Scan, our new TWINSKAN technology allowed customers to dramatically increase their rates of production by enabling them to expose wafers continuously. Two 300-mm wafers could now be processed in parallel: as one wafer was being measured, the other was being exposed.

The first dual-stage TWINSKAN to be shipped was the TWINSKAN AT:750T (earlier versions of TWINSKAN were single-stage). This combined dual-stage processing with a KrF light source (248 nm), enabling patterning at a line width of 0.13 microns. Then came the TWINSKAN AT:1100, which combined the new system with the ArF light source

(193 nm), taking the line width down to 0.09 microns. Barely two years later, we surpassed both of these machines again with a new generation of TWINSKAN technology. We were now producing a machine (XT) that could image down to a working resolution of 70 nm. And, as if that were not enough, we also managed to reduce its footprint, making it 25% smaller than its predecessor!

## Depth of focus

TWINSKAN made the processing of chips faster, but what about sharper working resolutions? We had to keep moving on both fronts. But there was a problem here. The higher resolutions that we had been able to obtain by increasing the numerical aperture came at the cost of a reduced depth of focus. And this in turn meant that greater accuracy and stability in placing the wafer was needed, slowing the whole process down. What we had won on one area, we were losing on another. Was there some way we could increase the depth of focus without surrendering the gains we had made in resolution?





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### Immersion lithography

Again, we turned to microscopy for a solution. By putting fluid between the wafer and the lens instead of air — a technique called immersion — we were able to considerably improve the depth of focus of the lenses and, at the same time, even increase the resolution of the projected image. In 2003, we produced the TWINSCAN XT:1150i — the industry's first working prototype immersion lithography system. Now, in 2004, the first machines are ready for shipping. It's believed that immersion lithography with

light at 193 nm will be able to take us down to a working resolution of 45 nm, and perhaps even beyond.

Twenty years on, and the company that few thought would survive its early years is thriving: strong, healthy and full of innovative ideas.



# ASML

around the world

Building 7 in Veldhoven



Building 8 in Veldhoven

In Asia, at the beginning of 1999, ASML Hong Kong, a wholly owned subsidiary, was created to manage ASML's regional business activities throughout the Asia-Pacific markets. Hong Kong was chosen because of its central location in the Asia-Pacific market. In 1999, ASML also decided to integrate the Hantech and ASML support operation into an ASML unit.

In 2001, ASML delivered lithography systems to Semiconductor Manufacturing International Corporation (SMIC), the first commercial foundry in China, a market with strategic growth potential in our industry. In 2003, in Taiwan, Singapore and Malaysia, we were able to consolidate all ASML activities and representatives into one office in each country, increasing cost efficiency.

In this period, ASML also entered the important Japanese market after 10 years of effort. This came through the sale of multiple Deep UV and i-line Step & Scan tools to a major Japanese semiconductor manufacturer. In 2001, ASML opened its first technology training center



Wilton, Connecticut office

in Japan. This expanded our presence in this market and demonstrated our commitment to new and existing customers.

Within Europe, in 1999, the Avezzano, Italy office was opened. In the Netherlands, construction work began on the new corporate headquarters building in December 2000. Employees moved in August, 2003. The headquarters building, known as building 8, has 20 floors, with a floor area of 18,500 square meters, which is comparable with 3.7 football fields. The height of the building is 82.57 meters, and it houses 900 employees.

In North America, the Austin, Texas region was split into two regions. An office in Portland, Maine was also opened, which was responsible for the coordination for Maine, Massachusetts and New Hampshire in the U.S., and our customers in Canada. In May 2001, after the merger with SVG, the number of worldwide sales and service centers grew significantly, and we gained a production facility in Wilton, Connecticut.

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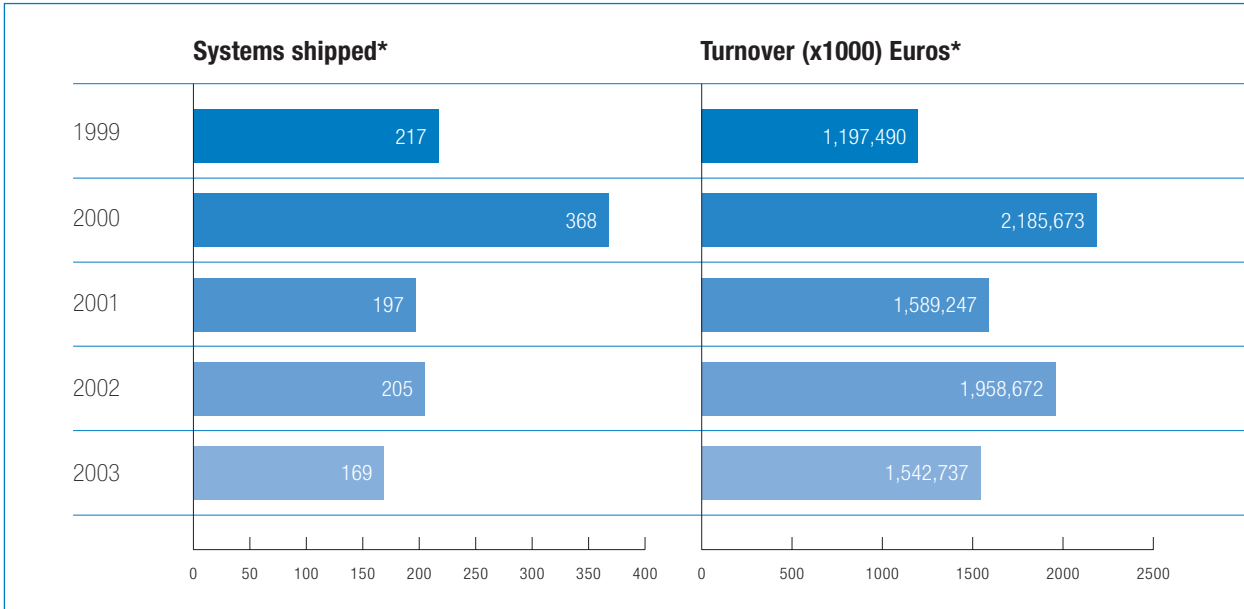
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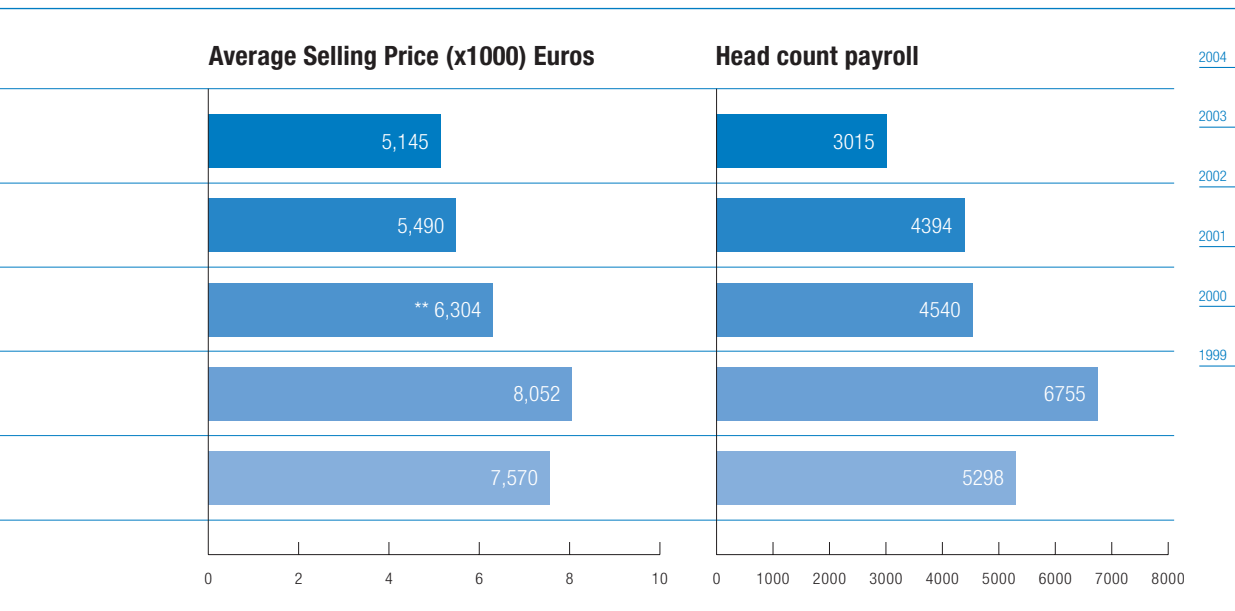
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# 1999 | 2004 Statistics



\* Source: systems shipped + turnover: ASML Finance annual report/management report

\*\* Including Litho SVG



ASML's entry into the new millennium was buoyed by a very successful year in 2000 in which the company broke the €2 billion revenue mark by shipping 368 systems at the highest average selling price of €5.5 million. Employment also grew to 4,000 employees worldwide. The 2001 merger with Silicon Valley Group, Inc. (SVG) catapulted ASML from being an export-driven, Dutch high technology business to a true global player.

# Social events

## Veldhoven

- 1 April 1999:** 15th anniversary held at PSV Soccer Stadium in Eindhoven. A few years earlier, CEO Willem Maris had given a presentation in the PSV business club. He announced that his target was to make ASML so big that all employees would fill the bleachers of the PSV stadium. During the 15th birthday party, ASML employees filled one side of the stadium, which by that time had grown as well.
- 2 September 2000:** Open Day Veldhoven: During the open day, between 6,500 and 7,000 people visited ASML. Many said that the cleanroom visit was the high point of the day. Visitors had to join the sort of queues you only expect at an amusement park. There were exhibitions, entertainment for both the kids and adults and lots of food.

## Tempe

- 1999:** 15th anniversary celebrated at a day of organized team building activities

## Korea

- 2000:** ASML Korea organized a company workshop for all its employees. After the serious part of presentations on annual results, Korean HR&O organization and Customer Support, the fun started with group games, dinner, dancing and the next morning (after a late breakfast) some white water rafting.

## Worldwide locations

- 3 2004:** ASML celebrates its 20th anniversary. The theme of the celebrations is: Reflect & Imagine (see next pages)





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# Social events

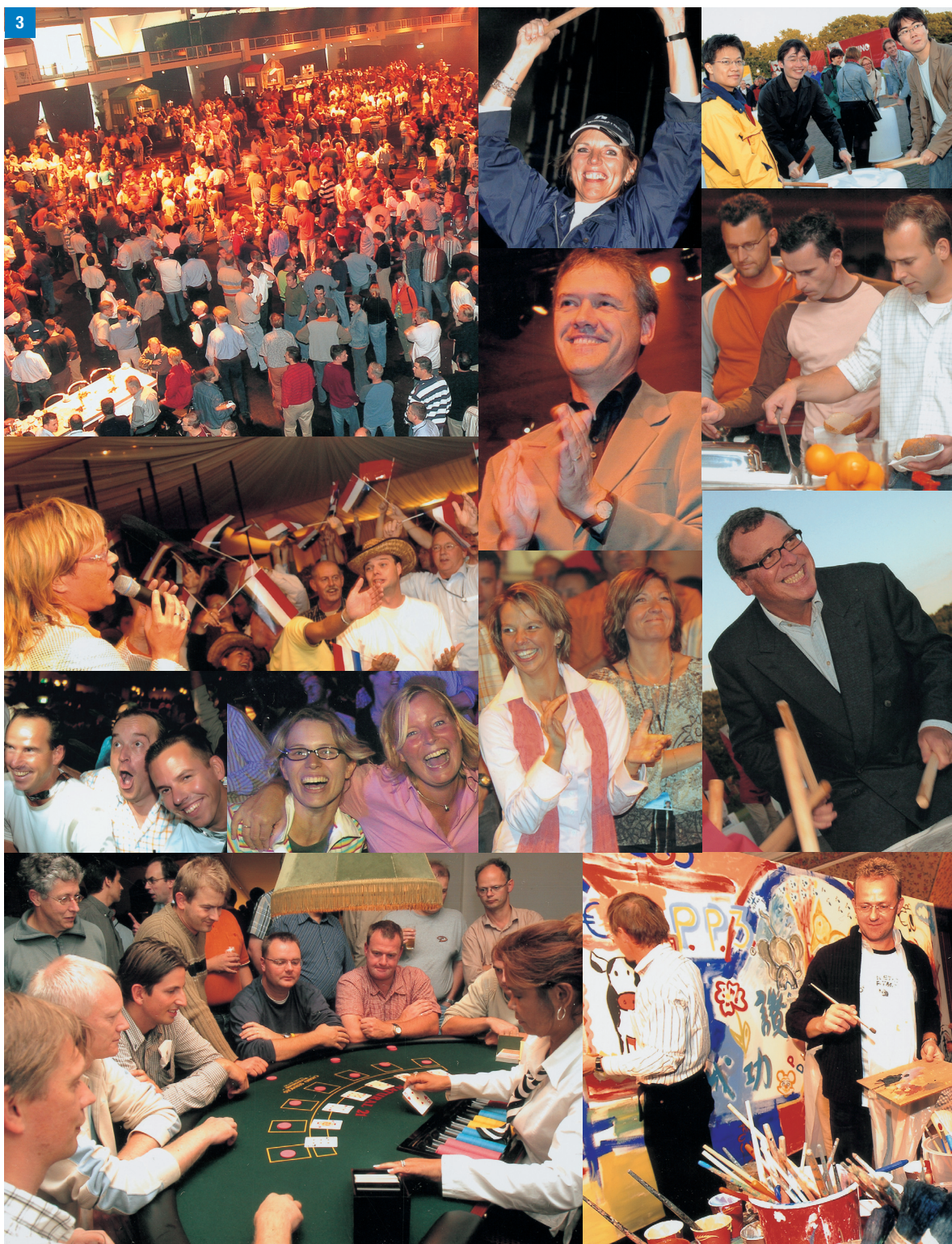






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# Social events





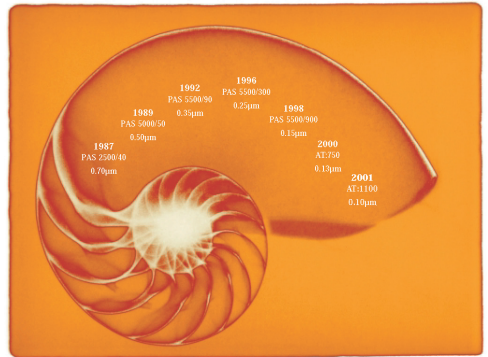
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# 1999 | 2004 Advertising

Day-in, day-out, semiconductor foundries are challenged by customers around the world to produce consistent quality devices on exceptionally tight schedules. They can't afford anything but the best, most productive lithography tools. That's why the world's leading foundries choose ASML imaging systems. You can do the same. ASML lithography tools can help you to hit the mark, regardless of how high you set it. For more information about ASML's PAS 5500 i-Line, 248nm and 193nm Step & Scan™ systems and the revolutionary TWINSCAN™ dual-stage 300mm systems go to [asml.com](http://asml.com).

Lithography Division

THE WORLD'S LEADING FOUNDRIES ARE HITTING THE MARK WITH ASML IMAGING SYSTEMS.



追い求める進化!

次世代半導体の生産、それは常に革新的な技術が必要となります。ASML は長年に渡り、これらの技術を進化してきました。新しいTWINSCAN AT:1100 AF F スキャナーがこの革新的技術の新たな進化です。お客様の次世代チップをいち早く市場投入させるのはこの技術です。お問い合わせは[asml.com](http://asml.com)へ。



7,500万トランジスタクラス以上  
の最新LSIの量産に対応。

業界最良の値(40.75 AF  
レンズ (Starlith 1100)、  
カルツァイス製)を稼働。

デュアル・ステージの採用により、  
20mJ/cm<sup>2</sup>-1.095ショットで、  
300mmクォーターハイス級/9枚のスリ  
ーットを露光。

ASML TWINSCANプラットフォーム  
オーム・AFFから継ぎで幅広い製  
品群で、チームトラスミックス・  
アンド・マシナを稼働。

Tools That Build The Future ASML

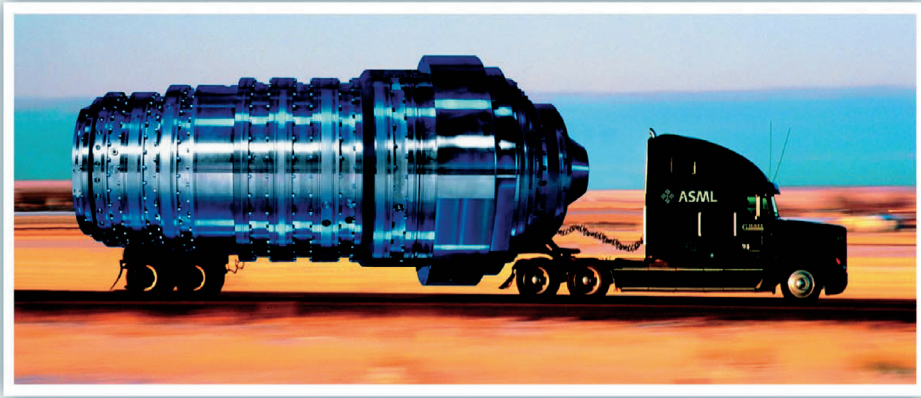
[asml.com](http://asml.com)

[asml.com](http://asml.com)


Tools That Build The Future ASML

# How Big Is ASML's LEAD IN TECHNOLOGY?

WE'RE THE ONLY COMPANY DELIVERING  
HIGH NA 193 NM LITHOGRAPHY SYSTEMS IN VOLUME.



ASML not only creates the industry's most advanced lithography technology, we deliver it. ASML was the first company to ship 200nm and 300mm high NA 193nm lithography systems, the PAS 5500/1100B and the TWINSKAN™ AT:1100B. These systems are in production today enabling 100nm resolution for tomorrow's advanced chips. To find out more about the industry's leading 193nm technology, visit [asml.com](http://asml.com).

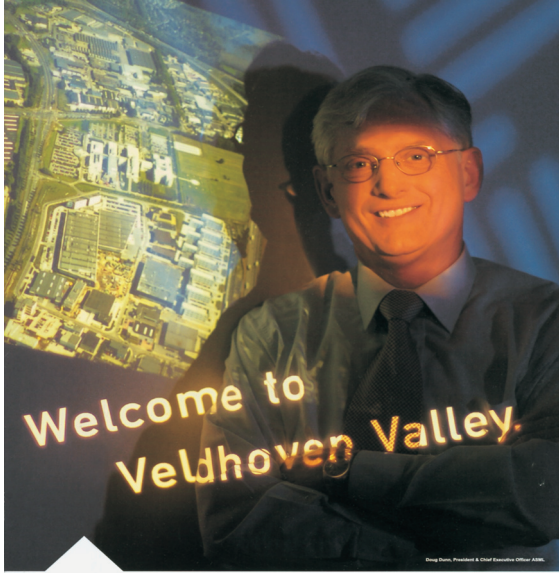
Tools That Build The Future 

[asml.com](http://asml.com)

Lithography Division

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# 1999 | 2004 Advertising



Long Beach, President & Chief Executive Officer ASML

De buitenkant geeft het geheim niet metten prijs: een staak of tien onopvallende gebouwen, verspreid over een paar vierkante kilometer langs de A2. De verrassing aan de binnenkant is dan ook de grootst: hier klopt het technologische hart van de halfgeleiderswereld. Welcome to Veldhoven Valley. Welcome to ASML.

**Werken bij ASML**

Wat Silicon Valley is voor informatica, is ASML voor technici. Geen bedrijf in Nederland waar je zoveel soorten top-techniek tegenkomt. Leading edge technology in fysica, mechanica, elektronica en informatica komen op de werkvloer samen

tot één machine die lithostralen produceert met een breedte tot 133 nanometer! Een dynamisch proces waarin het aankomt op creativiteit, snelheid, samenwerken en onderzameggest. Herken jij je in deze eigenschappen en heb je een technische opleiding, dan ben je van harte welkom in Veldhoven Valley.

**Welkom op [www.careers.asml.com](http://www.careers.asml.com)**

Kijk voor meer informatie, vacatures en loopbaanmogelijkheden op [www.careers.asml.com](http://www.careers.asml.com).



**Imaging the Future**

ASML Recruitment Center  
De Buij 110 3804 LA Veldhoven,  
Nederland. Mob: 248 20 70 Fax: 0424 248 93 90



ASML produces the world's most advanced lithography systems. Our technology leadership enables IC makers to image today's and tomorrow's highest performance chips.

ASML technology leadership is rooted in R&D and nourished by our people. We're committed to providing customers the right technology at the right time.

Technology leadership. It's how we became the market leader. It's how we're imaging the future. Find out more by visiting [www.asml.com](http://www.asml.com)



www.careers.asml.com

To go against the current  
 Analogue and digital  
 No PCB too complex  
 High resistance  
 A radio within two hours  
 A wafer stepper within two years  
 Innumerable components  
 Hands on  
 Integrated circuits  
 1/500th of a human hair  
 Speed  
 Ultimate precision  
 International competition  
 Being the first on the market

### Achieving what seems technically impossible.

The technological race against the clock implies that each second counts. Top technology of today is obsolete tomorrow. This is exactly what makes your dynamic work as an electrotechnician at ASML extremely challenging. At the ASML workshop floor, leading edge technology in fine mechanics, dynamics, optics and information technology coincide to work together in order to be able to develop systems within a short period of time, systems which amaze our clients, the world, and even ourselves. ASML, world leader in IC production systems, is an organization that seeks to open up new horizons of the technological feasible. The supply of highly advanced technology is a commitment we

have agreed upon with our clients. We need to meet this promise in real life. As an electrotechnician, you can contribute in several ways. The majority of the electrotechnicians are active within this field in which our products are developed. As an electrotechnician

#### Electrical Engineering

you will be involved with the ultimately complex interaction of the electrotechnical components and the further components of the system. No matter to what electronic specialization you have, here you will find the ultimate complex challenge.

Electrotechnicians are fully involved with the production and maintenance of the ASML systems. Here you will be confronted with the need to push back the frontiers of your own discipline. Whichever position you opt for, you will be working in a multi-disciplinary team, responsible for a certain machine section. This requires much more than pure expert know-how. You will be at ease within the ASML-culture if you are fully committed to technology and if you enjoy working in close cooperation with others. Should you require further information on ASML, or information regarding career possibilities, please refer to [www.careers.asml.com](http://www.careers.asml.com) or contact us by telephone +3100-000000



**RACE AHEAD WITH TWINSKAN**

**THE WORLD'S ONLY DUAL-STAGE LITHOGRAPHY SYSTEM**

ASML is committed to technology leadership. ASML TWINSKAN™ lithography systems deliver the highest productivity at the limits of optical lithography.

TWINSKAN is the only platform that combines world-class measurement accuracy with simultaneous, nonstop wafer imaging because it's the only system with dual stages. Why have the world's leaders in 300 mm productivity chosen TWINSKAN?

Dual stages. Race them for yourself on our test track at [www.asml.com/dualstages](http://www.asml.com/dualstages).

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# Supplier partnerships

Through the years, ASML has grown in every respect from being the newcomer to becoming a global market leader. We have sharpened our professionalism and solidified our knowledge. We continuously develop new techniques and strategies. Since day one, ASML has been an international company with customers all over the world. Our suppliers, on the other hand, are mainly based near the headquarters. About two-thirds of our 400 suppliers are based in the Netherlands.

In 2001 the idea of value sourcing was introduced within ASML. Value Sourcing assesses our suppliers on quality, technology, logistics and total cost. In this period, ASML, our customers and our suppliers had to face the strongest downturn ever. To develop a supply chain that is less vulnerable to the fluctuations in the semiconductor market, we asked our suppliers to operate on a more globally competitive base. We want suppliers who are not largely dependent on ASML, and we want to expand our international supplier base.



## Interview **Erik Corduwener**

**Demand for ASML's equipment soared in 1999 and 2000, shortly followed by the worst downturn the semiconductor industry has known. Erik Corduwener explains what this has meant for account management.**

# Relationships matter



As customers worldwide began canceling orders in late 2000, we didn't know we were facing a three-year downturn in which we would have to slash prices by up to 30%. As major Account Manager for ST Microelectronics and then Director of Corporate Account Support, I realized we had to focus on building our relationships with customers rather than just on sales, so that we would be in a strong position when things picked up.

When business stagnates, customers become more demanding, so it's vital that all interactions, from the fab floor to the Board of Management, are well

coordinated. You have to have a strong team structure and strategic account plan, and I concentrated on achieving both, first for ST and then for all key accounts. You could say that Corporate Account Support serves as the eyes and ears of customers, keeping teams on track and making sure their priorities are clear. In fact, account teams have proved so key that we're now implementing them in Procurement, for suppliers! I also have learned the importance of overcoming any cultural differences through effective communication.

Over the past 5 years, ASML has gradually become more market focused. Of course, technological leadership is essential, but without strong relationships, you don't have a business!

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## Interview **Erik Loopstra**

**ASML Fellow Erik Loopstra describes his role in ASML's recent technological breakthroughs and the challenge presented by the SVG merger.**

# Making history



Since joining ASML, I've always worked on the "the next big thing" in lithography, including as Study Leader for ATLAS, which became our massively successful TWINSCAN platform, and then from 1999 onward as Program Systems Engineer for the Extreme UV project. In 2003, when ASML decided to pursue immersion technology, I thought it was sure to fail, but I agreed to join a small team working on it. The excitement we felt on October 7, 2003 when we produced the first image using immersion was unbelievable — we knew that the industry's technological roadmap had changed irrevocably! I've really enjoyed working at the cutting

edge, with dedicated teams sharing expertise from many different fields. As projects grow, the challenges shift from the technological to the managerial. What's special about ASML is that it values technical contributions as highly as managerial ones, as shown by the ASML Fellowship I was awarded in 2000.

It hasn't all been smooth sailing: when merger negotiations with SVG started, the EUV team knew tough decisions would be needed to reconcile our project with SVG's. We were temporarily paralyzed as the U.S. government delayed the merger, and by the time it went through, the downturn had hit. The two former competitors had to become partners, despite strong business and cultural differences, and I traveled back and forth to Wilton to help establish a joint way of working. The spirit of cooperation and understanding continues to grow.

## Interview **Eileen Hantke**

**Eileen Hantke, Director of Human Resources and responsible for HR&O in Wilton (U.S.) and ASML Optics, joined ASML as a result of the merger of her previous employer, SVG, with ASML in 2001. Eileen recalls how she found herself at the crossroads of different cultures.**

# Merging people, merging cultures



When SVG merged with ASML in 2001, I'd been with SVG for seven years. The Lithography Division, which I worked for, was basically one of ASML's competitors. The merger took place at a time when the market was in deep recession, and as a result we had to lay off a significant part of our workforce. That was difficult, of course. But from an HR&O standpoint, the merger also brought with it some really interesting challenges, as we started moving toward common, global ways of working.

To me the most striking changes were cultural. Many Americans think that,

because our parentage is often Northern European, we're very similar to our Northern European colleagues. But in a business environment, there really are cultural differences between Europe and the U.S. They may be subtle, but you see them everywhere: in ways of working, doing business and in organizational issues. For me, this entire process has been — and still is — an exciting learning experience.

But the most memorable and rewarding part of it all has been the people. The interaction with individuals within the ASML organization has been great. People are open, helpful, friendly and caring. In addition, ASML has given me tremendous opportunities to learn and grow as a professional. Where else can you so easily approach your CEO and have a level dialogue? You can in this organization, and I'm proud to be part of it.

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## Interview **Doug Dunn**

**On the eve of his retirement, ASML's CEO Doug Dunn reflects on the company's tremendous achievements over the past five years.**

# From challenger to leader

When I became CEO in 1999, I was filled with enthusiasm about what the future held — and I'm even more so today, when I see what we've accomplished in recent years. Across the globe, we've been able to build upon ASML's long-standing strengths in technological leadership and entrepreneurial spirit, while underpinning these with operational excellence.

The first year of the new millennium was a breathtaking year of rapid growth and expansion for the high tech sector in general and ASML in particular. It was a time when no one could see an end to the growth. The year 2001 demonstrated how wrong the experts were. The economies of the world contracted severely, and for the first time in its history, ASML experienced the full impact of a downturn that turned out to be the worst ever in the 40 year life of the semiconductor industry.

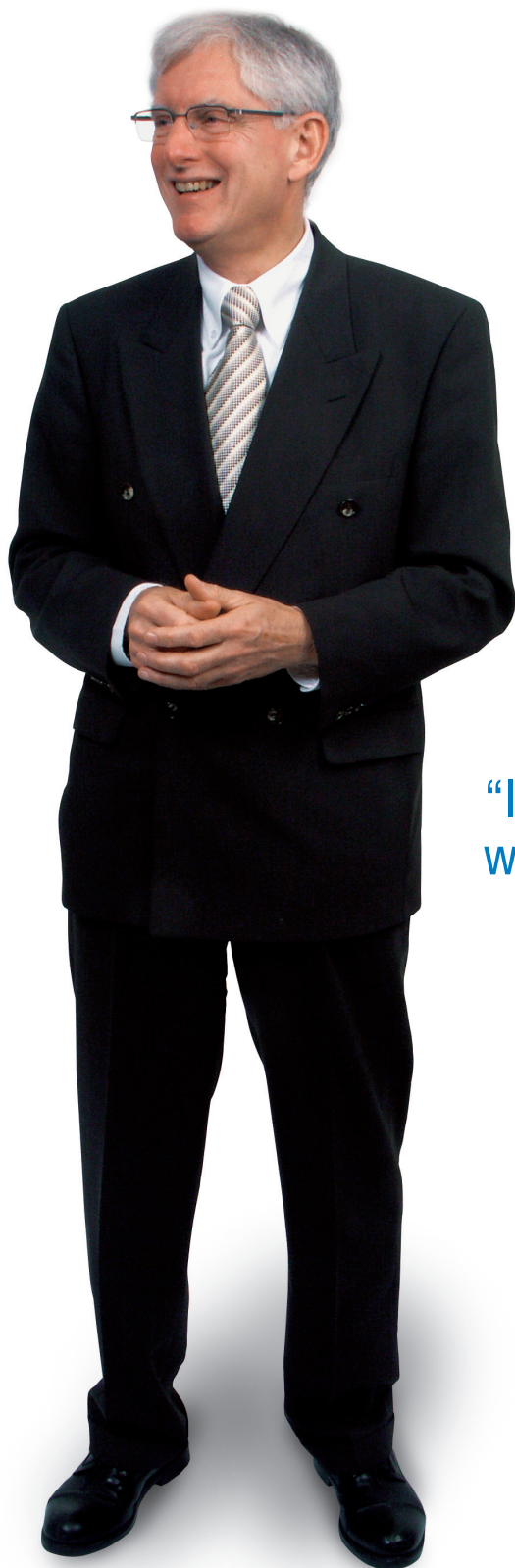
But the first 5 years of the new millennium were characterized by many significant achievements: We made our first ever sale to Japan.

We launched our most advanced product ever, TWINSKAN, a product which set such high standards that our competitors, three years later, have failed to equal.

We merged with SVG, thus bringing about much needed consolidation in our industry and giving us access to new customers, resources and technology including optical. This enabled us to offer even more aggressively competitive products to our customers. We captured market leadership in China, a country destined to be a major player in semiconductor manufacturing this decade.

We gained market share, emerging from the downturn years as the industry leader with 50% share of the market. We matured as a company and as individuals, focusing for the first time on operational excellence.

The results were above everyone's expectations but our own. The balance sheet was transformed as we generated cash from inventory and customer payments. Gross margin improved as our cost of goods reduction program began to pay back. By becoming more efficient with our resources, we could hold down



our costs in R&D and SG&A, resulting in improved (and improving) operating profit.

All this we accomplished in the face of a uniquely prolonged and severe downturn. Its impact on the high tech economy was so bad it was christened “the Perfect Storm.” But the Perfect Storm also took its toll on ASML, and we had to take some very unpleasant actions for survival. We reduced employment to a level needed for the three years of dramatically reduced sales. We divested our Thermal Division and closed our Track Division.

## “I’m extremely proud of what ASML has achieved”

The first five years of the millennium were turbulent, but for us we emerged in every way a stronger, more mature and more successful company. I’m extremely proud of what ASML has achieved. For me it’s been the most professionally satisfying and emotionally rewarding period of my long career. Thanks to the hard work, dedication and ability of all employees, ASML not only survived the Perfect Storm, we actually improved because of it. Now we are the undisputed industry leader and I have passed the baton to the new CEO so he can take ASML forward to new heights. I retire a proud and happy man.

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## Interview **Joseph Chen**

In February 1999, ASML opened its Asia Headquarters Office in Hong Kong. Joseph Chen, Sales Director for China, takes a look at how business has grown since then.

# Business booms in China



Apart from ASML's first shipment to Tsinghua University in 1988, I've been involved in every ASML sale to China — first as a Sales Manager for our agent Silicon International, and then directly for ASML. For two years before the Asia Headquarters Office was set up as a hub from which we could reach all our Asian customers, I worked alone from home. Things have changed radically since then: by April 2004, we had around 70 people in our Chinese offices and an installed base of 96 systems in China alone.

Sales in China took off in 2002, when we won large contracts with both SMIC and

the Huajing Electronics Group Corporation. We shipped 33 systems, almost tripling our installed base, and annual revenues for ASML in Asia jumped from €49 million in 2001 to €132 million in 2002! Sales dipped in 2003, but 2004 has been great. I'm also happy to say that we've won the contract for China's first 12-inch fab, in Beijing.

I think our success is due not only to the performance of our systems, but also to the relationships we've built up and the level of customer support we offer. Trust, flexibility and speed are key here, and it can take up to 5 years to acquire a customer, so you have to be persistent. Of course, it helps that we get great support from Veldhoven. Today, it's not how many systems we can sell, but rather how many we can deliver!

# The Foundation

## ASML Trust

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ASML Trust Board members: Bert Bijlhout, Henk van Engelen, Gerard Verdonshot

**ASML Trust is a legally independent foundation, established in December 2001. The aim of the foundation ASML Trust is to support efforts worldwide, regarding (technical) education, as well as other activities to improve the self-reliance of children, special target groups and the underprivileged.**

ASML Trust is the successor to the management share foundation of ASML, which was established in 1994 to administer the Management Incentive Share scheme. Certain members of ASML's Management and senior staff

were invited to participate in this scheme and were therefore eligible to receive each a certain amount of ASML shares in January 1998. However, not all shares were distributed in 1998, and according to the scheme's conditions, these shares had to remain with the Foundation.

To support ASML's "Commitment to the Community" initiative, it was decided that the Foundation should become a charity foundation. The income derived out of the remaining shares would be used for the financial support of projects and charity purposes in those countries where ASML is present. To facilitate this purpose, the bylaws were amended and the Foundation's name was changed to ASML Trust.

The Board of the Foundation ASML Trust, consists of ASML employees past and present, as well as non-ASML employees.



**Peregrine Semiconductor Corporation, based in California, designs, manufactures and markets high-speed communication ICs using its patented Ultra-Thin-Silicon (UTSi) CMOS process. Peregrine Semiconductor Australia (PSA) is a wholly-owned subsidiary of Peregrine Semiconductor Corporation. Located in Sydney near the venue of the 2000 Olympic Games, PSA became the first Australian customer to purchase ASML machines.**

PSA has an installed base of 5 ASML steppers; the first scanner, a PAS 5500/550B, was delivered in Q2, 2001. The purchase of this scanner enabled the customer to be upgraded from 0.5-micron to 0.25-micron technology. With the deep sub-micron CMOS on sapphire technology running on all ASML machines, PSA produces ICs for wireless and photonics applications.

PSA has plans for further expansion, so there is a real opportunity to ship more equipment.





**Semiconductor Manufacturing International Corporation, better known as SMIC, is a pure IC foundry established in 2000 by the well known semiconductor tycoon Richard Wang.**

SMIC is headquartered in Shanghai and now has four 8-inch facilities and one 12-inch facility operational, with several more being built. The first 300-mm ASML system for SMIC was installed in June 2004, and it was a major milestone both for ASML and SMIC. Two more 300-mm fabs will follow in 2005 and 2006. SMIC is very important to ASML because we are committed to growing our business in China and with foundries.

ASML was always a preferred supplier of litho equipment for SMIC. The main reason for this success was and is ASML's strong and competitive position in the foundry business. ASML continues to deliver high-end i-line, DUV and ArF equipment to SMIC, for both their 200- and 300-mm business, and has installed more than 50 scanners at SMIC.

SMIC's technology capabilities include logic, mixed signal/RF, high-voltage circuits, system-on-chip, embedded and other memories LCoS and CIS among others. The key to SMIC's rapid technology development and excellent fab management is a strong R&D team made up of experienced engineers from around the world and a network of leading international technology and manufacturing partners.

The SMIC-ASML relationship is strong and valued by both parties. We've learned a lot about the Chinese business environment over the past four years. SMIC is always looking for the right value for money for their specific circumstances, and ASML is always looking for opportunities to deliver this value.

In 2003, ASML received an award from SMIC for our outstanding Customer Support service and product performance and for the setup and installation of new systems in SMIC.

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# 1999 | 2004 **Facts**

## 1999

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- Grew market share further in 1999 to about 37% (measured in \$) from 29% in 1998
- Achieved ISO 9001 certification in the last quarter of 1999
- September 1999: Earthquake in Taiwan. Supported the recovery of the business environment in a remarkable way, managing to bring a number of activities back on line in a matter of days
- Strengthened our financial position by a \$ 520 million convertible bond, five times overwritten, thus enhancing ASML's ability to continue investing in the future
- Acquired the privately held MaskTools, creating the wholly owned subsidiary ASML MaskTools Inc.
- Formed the Technology Development Center (TDC) in the U.S. to research, develop and commercialize advanced image-processing techniques for future generations of semiconductor devices
- After shipping the 100th Step & Scan system in August, shipped more than 100 Step & Scan systems in the second half of 1999 alone, underlining ASML's position as premier supplier of Step & Scan systems in the industry

## 2000

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- As the clock moved forward around the world on January 1, 2000, Korea became the first ASML office to see if our millennium-preparedness worked. We passed with flying colors. This was repeated for all installed ASML equipment worldwide.
- Saw major shareholder, Royal Philips Electronics, sell 69 million shares to the public market, thus reducing its share in ASML from approximately 23% to 7%
- Signed a strategically important agreement in October to merge with the Silicon Valley Group (SVG)

- Entered the important Japanese market for semiconductor lithography systems with the sale of multiple Deep UV and i-line Step & Scan tools to a major Japanese semiconductor manufacturer
- In December, TSMC, one of ASML's major customers, announced that it delivered the first 300-mm customer wafers from its 300-mm line with better-than-expected initial yield and ahead of the original schedule
- Introduced the dual wafer stage technology for our TWINSCAN platform, to optimize the lithographic processing of 300-mm wafers by parallel operation of two independent wafer stages to enhance productivity

## 2001

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- Marked a milestone through the completion of our merger with SVG, positioning us as a global player in the semiconductor equipment industry and broadening our product offering
- As the downturn worsened, implemented a program to reduce capacity and cost in June
- Marked a record year for introducing and delivering more new and leading edge lithography products, notably for 248-nm and 193-nm applications, despite a deteriorating economic climate
- Raised \$ 575 million in a convertible bond offering to be used for corporate, research and development needs
- Sold Tinsley Laboratories Inc.

## 2002

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- Combined research and development activities in the U.S. and Europe in 2002 (total spending of EUR 324 million and around 17 percent of net sales) to increase efficiency and enhance time-to-market for future products
- Improved management of our supplier base, with measurable gains in quality, shortened lead times and on-time delivery, including significant reduction in cost of goods versus 2001
- Strengthened our balance sheet by calling for redemption of our convertible bonds issued in 1998 worth EUR 268 million, prompting conversion of over 99 percent of those bonds into ordinary shares
- Addressed loss-making Track segment by terminating Track operations
- Achieved the number one position in the global market for semiconductor lithography systems in 2002
- Achieved top satisfaction ratings in 2002 among customers of lithography systems for “cost of ownership” and “technology leadership,” according to VLSI Research, an independent industry research organization
- Established ASML Trust in 2002, with the aim of giving financial support to non-profit organizations and societies located in countries where ASML operates

## 2003

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- Announced the industry’s first immersion lithography system — TWINSKAN XT:1250i — a very high resolution tool using 193-nm wavelength technology that combines wider focus range through “wet” imaging along with the proven precision of “dry” measurement on our dual-stage system
- Achieved top customer satisfaction ratings: surpassed every lithography competitor, and ranked number 2 overall among large suppliers of all types of chip making equipment, according to VLSI Research, an independent industry research firm
- Shipped the 100th TWINSKAN system, reaching this milestone in September and concluding 2003 with an installed base of over 2000 steppers and scanners

throughout Asia, Europe and the United States

- Addressed non-core activity through divestment of Thermal operations
- Given Dutch Trade Award in Korea honoring the close ties between Korea and the Netherlands
- Named world leader in stepper market by Gartner Dataquest, an independent research and consulting firm specializing in the technology industry. The findings are based on market surveys about 2002 revenues and unit sales from companies competing in the capital equipment market

## 2004

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- Celebrated our 20th anniversary on April 1
- Shipped first TWINSCAN to China, making it the 100th ASML system in China.
- Showed world-class leadership in financial reporting. ASML published final annual figures within 14 days and was ranked in top 20 worldwide for all publicly listed companies, number 1 in the Netherlands and in the top 5 worldwide for large capital companies
- Shipped world's first pre-production immersion system

# ASML merges with SVG

In 2001, ASML announced a merger with SVG, which had formerly bought the lithography part of Perkin Elmer. Perkin Elmer, a real innovator in lithography, built the semiconductor industry's first projection mask aligners and first DUV and 193 and 157 Step & Scan systems.

## Building the Micralign

In 1971, Perkin Elmer was awarded a contract to develop a Projection Mask Aligner that could eliminate the mask-wafer contact problems that Philips was also struggling with.

After successfully demonstrating their concept in prototype hardware, Perkin Elmer saw a significant market potential in the growing semiconductor industry. A second development effort to commercialize this technological breakthrough was initiated. The new design employed an all-reflective projection optical system using a 1X "ring-field" design, in which the entire wafer was exposed with a single scanning mechanism. In July 1973, the first Micralign was introduced.

## Micralign 300 series

The Micralign has been a remarkable success. Almost 4000 Micralign systems have been produced and sold worldwide. Micralign systems are still in use in many fabs around the world, and are available from ASML on a refurbishment basis. In the early 80s, Perkin Elmer acquired Censor, a stepper manufacturer in Europe that used optical systems from Carl Zeiss. From this merger, a series of stepper products were developed to compete with mainly GCA and Nikon.

## Micrascan

After the industry transition from full wafer projection lithography to "steppers," the Microlithography division combined the control of scanning stage technology with traditional stepper capabilities to develop the breakthrough technology of Step & Scan lithography.

The Micrascan I (MS I) was the industry's first Step & Scan system, and was introduced in 1988. The MS I offered advanced features for its time, such as 0.35 NA optics, a 248-nm center



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The Micralign 300 series

wavelength mercury-xenon lamp exposure source, a through-the-lens (TTL) alignment system, a field size of 20 mm x 32.5 mm and a resolution capability down to 0.4 micron. The Micrascan I Step & Scan provided a breakthrough in lithography technology, critical dimension control and overlay performance.

Other Micrascan systems followed. Improved optics provided resolution capability to 0.18 microns, and improved overlay to < 45 nanometers. The Micrascan III+ is still in production today, and continues to provide exceptional critical level imaging performance for today's leading edge devices.

### **SVG adds Lithography to its portfolio**

In 1989, Perkin Elmer, which had ventured into the lithography business as a means to diversify the company, decided to sell its lithography division to Silicon Valley Group (SVG), a manufacturer of wafer-processing equipment. SVG already built

wafer tracks and thermal equipment. Under SVG, lithography development continued to flourish.

### **ArF technology**

Almost a decade ago, SVG Lithography developed an experimental ArF Step & Scan machine. The tool was based on the Micrascan II. The lamp source was replaced with a simple illuminator using an unnarrowed ArF laser, and the Micrascan II optics were modified with appropriate lens coatings and curvature changes to accommodate the shift to 193-nm exposure wavelength. The system enabled early development of ArF resists and provided a wealth of information on the effects of ArF radiation on optical systems and materials.

### **ASML expands**

ASML began reviewing possible expansion in early 2000. The industry was strong, and ASML needed to grow if it wanted to stay competitive in the market. At the time, SVG was struggling financially, and

## ASML Merges with SVG

ASML began considering the possibility of a merger between the two companies. Through a merger, ASML would broaden its access to leading technologies. In addition, we would increase our Research and Development (R&D) options in the United States, and have lithographic production facilities in the U.S. for the first time. That would give us access to new customers, markets and suppliers.

Doug Dunn, who was chief executive officer of ASML when the merger agreement was announced in October 2000, described the merits of the deal this way: “This is an excellent strategic fit with little overlap. It is consistent with our mission of providing leading-edge imaging solutions to improve our customers’ global competitiveness.” He added that the addition of SVG provides ASML with “...a tremendous opportunity to enhance our technology potential and leverage future R&D efforts in next generation technologies.”

Papken Der Torossian, chief executive officer of SVG, agreed. “This merger

would fulfill our longstanding vision of having the size and resources necessary to meet the expected explosive growth in demand in the semiconductor industry.”

Still, many political sensitivities were involved. The U.S. Department of Defense and a number of federal legislators expressed their concerns over the sale of a high-tech American company to a foreign company. The Committee on Foreign Investment in the United States (CFIUS) was tasked with reviewing the consequences of the proposed merger. After several months CFIUS approved the merger. This approval was based on ASML agreeing to sell Tinsley Laboratories, an SVG subsidiary that performed government work, to an American company within an established timeframe after the merger. The commercial side of Tinsley’s business became ASML Optics.

On May 21, 2001, ASML completed its merger with SVG, and the combined forces moved forward together.

The all-stock transaction was valued at €1.8 billion (\$ 1.6 billion). On December





The Micrascan I

18, 2001, ASML finalized the sale of Tinsley to SSG Precision Optronics Inc., in Massachusetts, U.S.

### Facing the downturn

By the time the sale was completed, the semiconductor industry was already seeing the first signs of the downturn. However, the difficulties in the Track part of the ex-SVG company proved to be too challenging. The investments needed to bring Track up to the right level were unwise to maintain in the face of the increasingly deep downturn. ASML decided to close the Track division in December 2002. There were also deep cuts in personnel at Track, Thermal and the Lithography offices in the U.S.

By December 2002, ASML had decided that Thermal did not contribute to our strategic outlook. In October 2003, we sold the Thermal division to a privately held company formed by VantagePoint Venture Partners.

### Important contributions

By the end of 2003, the industry was finally picking up, and ASML began to use our acquired production facilities in Wilton, Connecticut to build modules. Wilton now delivers an important contribution by building modules, using a U.S. supplier base.

Last year, the team in Wilton, Connecticut, engaged in a development effort which has led to the installation of the world's first and only 157-nm full-field Step & Scan system.

In 2004, a development team based in Wilton participated in a joint project with Veldhoven to come up with SMASH, a next-generation alignment system.

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# Public affairs

**As ASML has grown to become a globally operating company, our relations with public and government authorities have deepened and expanded. This is called public affairs. It means representing ASML to different audiences at local, regional, national, federal and European levels. It means managing programs in Europe, the United States and Asia to position ASML with clarity and consistency.**

Public affairs includes government funding, R&D credits and industry issues. It covers matters that relate to technology, legal, tax, environment, health and safety.

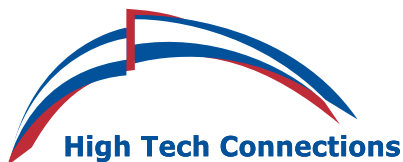
It involves social, labor, trade and competition issues. It is involvement in consortiums, especially those with an element of public funding.

The goal of public affairs is to strengthen ASML's company profile, support our business objectives and influence decisions. This means communicating the right messages — along with timely, accurate information — to public and government authorities in markets

worldwide where ASML does business. It is management of existing relationships as well as proactive outreach to new ones.

Former CEO Doug Dunn summarized: "No company alone can sustain R&D investments in global market conditions. ASML works closely with governments, research institutes and universities to encourage investments needed to push the technological boundaries. Together, we have a stake in successful chip making technology, the critical enabler of the semiconductor industry and a major economic multiplier."

In the late 1980s, ASML started to lead and participate in several European programs, based on the EUREKA and ESPRIT programs. For example, early development of 248 nm provided a timely entry for mastering this technology, especially when ASML was still a small contender. In the early 1990s, ASML developed its 200-mm wafer body called the PAS 5500 platform. It was realized in several European R&D projects and enabled ASML to participate in the



growth of the global semiconductor equipment market. These were successful semiconductor technology developments that resulted from support through European Union projects and Dutch national grants and credits.

IMEC, Europe's largest independent microelectronics and nanotechnology research center based in Leuven, Belgium, is a long-term partner of ASML. IMEC had coordinated two projects in lithography to assess ASML technology, developed in earlier EUREKA projects.

The first project was European Deep-UV (DUV) stepper assessment in 1996 and 1997 for the ASML PAS 5500/300 DUV stepper, the first ASML KrF system that was designed for production lithography. Partners were Philips, Siemens, GEC Plessey, Texas Instruments, Advanced Micro Devices, National Semiconductor, LG Semicon, TSMC and Lucent Technologies. The second project, from 1999 to 2000, was for advanced lithography using an ArF Scanner. It assessed the ASML PAS 5500/900 ArF Step & Scan

system, ASML's first generation of such a system. Integrated Device Manufacturer (IDM) partners included Infineon Technologies, Philips, Advanced Micro Devices, Cypress, IDT, Intel, Micron, Motorola and Texas Instruments. Funded by the European Commission, these projects created a unique opportunity for many companies to evaluate ASML technology. Nowadays, ASML is conducting public affairs in several centers internationally. For example, MEDEA+ is the leading European program for advanced cooperative R&D. In the U.S., ASML is involved with DARPA, Sematech North and national laboratories, to name a few. ASML is also a founder of High Tech Connections, a unique public and private consortium to promote technological exchanges and innovation among American and Dutch companies, institutions and universities. It was launched in 2004 by the Dutch Ministry of Economic Affairs and the U.S. Embassy in the Netherlands. In summary, ASML public affairs strives to facilitate and sustain an external environment in which ASML business worldwide can prosper and benefit its stakeholders.

# Corporate Identity

**A brand is a mark of trust. It is what a company values and thinks and how it behaves. When customers, investors and others relate with ASML, they experience the ASML brand of people, products and performance. They feel the promise of commitment.**

A major component of a strong brand is a corporate identity. A strong corporate identity can control a consistent and recognizable visual style inside and outside the company.

ASML formerly took an organic approach to corporate identity — each organization or region created its own brochures and presentations. There was little to tie these items to each other or to the company. Those days have passed. ASML's new corporate identity is a flexible, scalable system that is easy to understand and adapt. There are several core elements of ASML's corporate identity system.

The ASML logo (the wordmark combined with the wafer alignment mark) has subtly changed appearance. However, it remains

the central corporate identity element and represents the high technology focus of the company.

The color palette consists of ASML's primary colors — corporate blue and white. Secondary and warmer colors such as yellow (to represent the clean room), green and orange, were introduced to complement the existing scheme.

The notch device was created to strengthen our identity and provide a symbolic link to the notch on each wafer that enables precision in semiconductor manufacturing.

Helvetica remains the corporate typeface. It is legible and universal with a streamlined look to support the high technology image of ASML.

The corporate identity system continues to gain momentum as more employees discover its use and take pride in its purpose.

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